COMMUNICATIONS TECHNOLOGY AND DISTANCE LEARNING IN CANADA

A Survey of Canadian Activities

Anna Stahmer

International Development Centre
Ryerson Polytechnical Institute

With assistance from

Barbara Helm
Department of Communications

This study was undertaken for
the federal Department of Communications
Contract No. 36100-5-0220.

ERRATA

Page	Correction
12, 18, 24	Change Interuniversity to: Inter-universities
35	Change Comor to: Comox
62	Add Postal Code: T0A 0V0
135	Change M5V 1V6 to: M5S 1V6
162	Add Postal Code: N2L 3C5
218	Add (to Alberta Education Correspondence School section): 10020-100 Street 20th Floor, Section F T5J 0N5
220	Change Laurential to Laurentian

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The information contained in this report was provided by the author and is not necessarily endorsed by the Department of Communications.

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Social Policy Directorate
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PREFACE

The focus of this Sourcebook is on instructional and learning support activities which use communication technologies in distance learning. Priority is given to currently ongoing projects. A number of pilot projects and experiments which were conducted in the past are also included in order to bring significant traits to the reader's attention.

The purpose of the Sourcebook is to provide distance educators, who wish to employ technologies as part of their delivery method, with descriptions of the experiences and practices of other organizations. Subsidiary purposes are to demonstrate to telephone companies, manufacturers and instructional learning service providers, the scope and type of use of communications technologies by this sector.

The Sourcebook is broad in scope and includes distance learning activities at universities, colleges, school boards, provincial ministries of education, educational communication authorities as well as at private companies. It includes activities which directly support the instructional process as well as those which support the administration of distance education projects and research. The Sourcebook spans the whole field of communication technologies which are employed in distance learning, including satellite and cable services, TV and radio broadcasting, and video-, audio- and computerconferencing. It includes computer, slow-scan television, electronic blackboards and other technologies which support the instructional processes.

The Sourcebook is divided into three main sections. Part I introduces the Sourcebook. Part II summarizes in chart form the key activities of each of the 57 projects included in the Sourcebook. Three sets of charts were developed: one for communication technologies; one for the sectors in which distance learning takes place; and one for their programme content. Part III contains 57 detailed project descriptions as well as 38 additional entries of significant and relevant activities.

ACKNOWLEDGEMENTS

At Ryerson Polytechnical Institute, my colleagues, Professors Mikhail and Gillies assisted in this study. Sam Mikhail provided valuable input to and reviewed the communication technologies section of all project descriptions. Donald Gillies was responsible for the section on Telidon videotex/teletext applications.

Thanks go to the many colleagues across the country who have so willingly contributed to this Sourcebook - a contribution which really makes the Sourcebook theirs. I wish to apologize in advance to those associated with significant projects not included in the Sourcebook. Some projects did not fit the selection criteria, others came too late to my attention. My thanks go to those individuals who assisted in an advisory capacity and contributed their valuable experience, including Pierre Patry, David Roach, Kay Rogers, Charles Shobe and Gordon Thomson. Liz Burge, John Daniel, Jocelyn Picot and Judy Roberts deserve a particular mention for their active support.

Acknowledgements could not be complete without mentioning Ray Lewis's book, Meeting Learner's Needs Through Telecommunications: A Directory and Guide to Programs, prepared for the Centre for Learning Technologies and Telecommunications, Washington, D.C. It helped tremendously in the conceptualization as well as the organization of this Sourcebook.

The continuous and substantative help and suggestions received from DOC, in particular Barbara Helm and Terry Kerr as the contract's scientific authorities, were very much appreciated.

Anna Stahmer
February 1986

PART I: INTRODUCTION TO THE SOURCEBOOK

Communications technologies and distance learning have for a long time made easy partners. Radio and television have been used to serve Canadians with very different learning needs, such as the rural farm forums or educational classroom television.

At the same time, however, major distance learning activities have come to rely as their method of delivery, primarily on correspondence or travel by an instructor. Three factors contribute to this situation. One is the fact that the technologies available often were costly, their distribution not extensive or not flexible enough to suit the instructional process. The other is the fact that institutions that provided distance learning opportunities did not have the experience with the technologies necessary to comfortably employ them on a larger scale. A third contributing factor was the relative lack of access of the learners themselves to these technologies.

A. The Changing Learning and Communication Environments

Present dynamics and developments of communication technologies almost demand of the distance educator to understand them and to assess their potential on a continuous basis. Older technologies are becoming refined, mature, and more affordable. New technologies and services are accessible to increasingly larger segments of the population, and are increasingly developed with attention to needs in instruction and research. At the same time, new learning needs of the population are coming to the fore. Part-time studies for working adults, professional upgrading of diverse learning groups and access to learning in newly developing fields characterize some of these needs. There appears to be an increasing convergence between these two areas.

The present Sourcebook was initiated by the federal Department of Communications (DOC) and Ryerson Polytechnical Institute in September 1985 and the field survey work was completed by February 1986. Consisting primarily of descriptions of presently operating projects, programmes and activities, it gives a glance at the present rate of this convergeance in Canada. In addition, the Sourcebook includes brief descriptions of past key projects and charts describing individual projects, the different communication technologies used, the types of audiences served and the content offered.

Hopefully, the survey can occasionally be updated in the future.

B. Guide for Users

The purpose of the Sourcebook is to provide distance educators and communication service providers with concrete examples of distance education activities as practised to-date in Canada.

Each of these two user groups have their own terminology. We decided to employ terms most commonly used in each sector and to add an explanatory glossary of terms.

Each of the user groups also has their own particular information needs, which we captured in the project descriptions under the following categories:

Educational Mission
Communication Technologies
Programme Offerings
Educational Delivery System
Enrolment
Administration
Software Development
Training
Financing
The Future
Services
Contact

In order to enable planners today to benefit from the past and ongoing experiences of their colleagues, we have endeavoured not only to document projects as thoroughly as possible but also to provide names of contact persons who might be able to provide further information. Therefore, this Sourcebook has evolved as both a directory of projects and of professionals.

The programme planner may well find the summary charts on page 8 as the most useful starting point, and from there, the individual project descriptions.

We would ask readers to provide us with feedback on how useful they found this publication as well as suggestions for updating and/or making it more comprehensive by completing and forwarding the questionnaire at the back.

When reading the project descriptions, the readers should note that:

- some of the descriptions deal with individual courses or a single set of activities, whereas others describe the whole organization and its distance outreach activity. Generally, in the latter instances, the overall organization has a telecommunication and education outreach thrust, whereas in the former only a small portion of the activities employ communication technologies in pilot or individual courses or activities.

- some of the projects described here use telecommunications only on a limited basis, considering their overall volume of activities. They, however, use communication technologies in a significant way for student and course administration and are thus interesting from this perspective. Other projects describe a relatively small-scale activity, i.e. occasional professional education via satellite from U.S. sources or administrative computer networks for school boards. There are many other organizations which participate in similar activities, but could not be listed here. In these instances, the descriptions included here serve as an illustration for a type of use but it is understood that other organizations participate in this activity as well.

- the focus of the descriptions is on structured instructional uses of communication technologies. The descriptions therefore, should not be seen as a representation of the overall role of a given organization, but as a representation of its activities in this specific area.

C. Listing of Projects

Only the detailed project descriptions of Part III, Section A, are listed here. The reader is referred to the remaining Sections of Part III for additional listings.

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PART II: SUMMARY CHARTS

The following summary charts represent broad categorizations of some of the information represented in the project descriptions of Part III. Their aim is to assist readers to more easily find specific information for which they are looking. Three main categories were chosen:

Chart A - Communication Technologies
Chart B - Educational Sectors
Chart C - Programme Areas

Readers should note that these categories only reflect an institution's activity in distance learning and not its overall mandate or activities.

Please note the following comments on the three charts:

A number of organizations provide a technical system or network service to other organizations, who lease, or rent them or have entered into other access arrangements. Some of these organizations are purely providers of this network service, whereas others also offer some instructional content on their own. Throughout, the charts are marked by (1) in the right hand column to indicate these service providers.

Please note for Chart A: Communication Technologies

Atlantic Satellite Network (ASN) in Halifax should receive special mention as it offers for educational institutions, free-of-charge, twenty hours of access to its distribution system. Some of the institutions in the region interact directly with ASN, whereas others use the DUET facilities at Mount Saint Vincent University to access the satellite. (DUET stands for Distance University Education via Television).

Please note for Chart B: Educational Sectors

- the column "vocational/technical" largely denotes programmes which originate at community colleges and offer some type of credit for the student, often a certificate;

- the column "professional and continuing education" includes university professional certificates, credit and non-credit professional programmes, as well as activities for adults of more general educational nature.

Please note for Chart C: Programme Areas

- The Programme Areas categories are very broad and include studies at very different levels. For example:
  - health sciences includes topics ranging from continuing medical education, to graduate or diploma nursing studies, to certificate or non-credit programmes in gerontology;
  - engineering/technology includes professional non-credit seminars for engineers, or certificate and diploma programmes for technicians and technologists. This category also includes computer sciences;
  - the business/management category includes public administration and economics;
  - the arts and social sciences category also includes humanities and religious studies.

CHART A: COMMUNICATION TECHNOLOGIES

CHART A: COMMUNICATION TECHNOLOGIES

ORGANIZATION:	SATELLITE	CABLE	TV	RADIO	TELEPHONE	AUDIO CONFERENCING	COMPUTER	OTHER
BRITISH COLUMBIA								
Knowledge Network	o	o	o			o	o	(1)
North Island College	o	o	o		o	o	o	
Open Learning Institute	o	o	o		o		o	Telidon Trial
Simon Fraser University	o	o	o		o			
University of British Columbia	o	o	o		o	o		
University of Victoria	o	o	o		o	o	o	
ALBERTA								
Access Alberta	o	o	o	o	o			(1)
Alberta Correspondence School						o		Telidon Trial
Alberta Hospital Association						o		
Athabasca University	o	o	o	o	o	o	o	
Lakeland College						o		
Lethbridge Community College						o		
Mount Royal College						o	o	
Northern Alberta Institute of Technology	o	o	o			o	o	
Southern Alberta Institute of Technology						o	o	Telidon Trial
University of Alberta Medical Education						o		

	SATELLITE	CABLE	TV	RADIO	TELEPHONE	AUDIO CONFERENCING	COMPUTER	OTHER
University of Alberta Instructional Systems					o		o	
University of Calgary					o	o	o	Telidon Trial
SASKATCHEWAN								
Saskatchewan Education, Correspondence School					o		o	
Saskatchewan Indian Federated College						o		
Saskatchewan Telehealth Consortium						o		
University of Regina, Extension			o			o		Fiber Optics
University of Saskatchewan, Extension	o		o		o	o		
MANITOBA								
Brandon University					o	o		
Interuniversity North						o	o	
Manitoba Department of Education		o	o					
University of Manitoba						o		
ONTARIO								
Board of Education, London			o				o	ITFS
Carleton University		o	o		o			
Confederation College						o		
CJRT-FM				o				

	SATELLITE	CABLE	TV	RADIO	TELEPHONE	AUDIO CONFERENCING	COMPUTER	OTHER
Georgian College						o		
Guelph University						o	o	Telidon, E-Mail
Humber College						o	o	Telidon, E-Mail
Laurentian University		o	o		o	o		Telidon Trial
Ministry of Education							o	Videodisc
North-East Ontario Telehealth Network						o		Slow-Scan TV Trials
Ontario Institute for Studies in Education						o		
Ontario Institute for Studies in Education							o	E-Mail
Sheridan College	o	o	o	o		o	o	Videodisc, TVRO for U.S. reception
Telemedicine for Ontario		o	o			o		Slow-Scan TV Trials
Television Language Training Inc.		o	o		o			
TVOntario	o	o	o		o	o	o	E-Mail, Telidon Trial (1)
Toronto Institute of Medical Technology						o		
University of Ottawa		o	o			o		Slow-Scan TV, Electronic Blackboard
University of Western Ontario		o	o			o		
Wilfrid Laurier University		o	o		o	o		

	SATELLITE	CABLE	TV	RADIO	TELEPHONE	AUDIO CONFERENCING	COMPUTER	OTHER
QUEBEC								
Canal,Inc.	o	o	o		o			(1)
Radio Quebec	o	o	o					(1)
Tele-Universite	o	o	o		o	o	o	Field trials with E-Mail, videotex, videodisc, interactive video
University of Montreal	o	o	o		o			
University of Quebec			o		o	o	o	Facsimile, Telex
NEW BRUNSWICK								
Dr. Everett Chalmers Hospital						o		
New Brunswick Hospital Association						o		
University of Moncton	o	o				o	o	Electronic blackboard, E-Mailfield trials
University of New Brunswick	o	o	o			o		
NOVA SCOTIA								
Atlantic School of Theology	o	o	o			o		
Dalhousie University	o	o	o			o		
Mount Saint Vincent University	o	o	o			o		(1)
Technical University of Nova Scotia	o				o			TVRO for U.S. reception
University Saint-Anne	o	o	o		o			

	SATELLITE	CABLE	TV	RADIO	TELEPHONE	AUDIO CONFERENCING	COMPUTER	OTHER
NEWFOUNDLAND								
Memorial University	o	o	o		o	o	o	Hermes and Anik B trials, Slow-scan TV, Telewriters
NATIONWIDE								
Canadian Teleconferencing Network	o					o		Videoconferencing events only (1)
Continental Bank							o	
Darome Connection						o		(1)
Telecom Canada						o		SSTV, electro-writers, video-conferencing (1)
Developing Countries Farm Radio Forum				o				

CHART B: EDUCATIONAL SECTOR

CHART B: EDUCATIONAL SECTOR

ORGANIZATION:	ELEMENTARY SECONDARY	VOCATIONAL TECHNICAL	UNDER-GRADUATE	GRADUATE	PROFESSIONAL & CONTINUING	COMMENTS
BRITISH COLUMBIA						
Knowledge Network					o	(1)
North Island College			o			
Open Learning Institute	o	o	o			
Simon Fraser University			o			
University of British Columbia			o		o	
University of Victoria			o		o	
ALBERTA						
Access Alberta	o				o	(1)
Alberta Correspondence School	o					
Alberta Hospital Association					o	
Athabasca University			o			
Lakeland College					o	
Lethbridge Community College		o				
Mount Royal College		o				
Northern Alberta Institute of Technology		o			o	
Southern Alberta Institute of Technology		o			o	
University of Alberta Medical Education						

	ELEMENTARY SECONDARY	VOCATIONAL TECHNICAL	UNDER-GRADUATE	GRADUATE	PROFESSIONAL & CONTINUING	COMMENTS
University of Alberta Instructional Systems					o	
University of Calgary			o	o	o	
SASKATCHEWAN						
Saskatchewan Education, Correspondence School	o					
Saskatchewan Indian Federated College					o	
Saskatchewan Telehealth Consortium					o	
University of Regina, Extension			o			
University of Saskatchewan Extension			o		o	
MANITOBA						
Brandon University			o		o	
Inter-university North			o			
Manitoba Department of Education	o	o			o	
University of Manitoba			o		o	
ONTARIO						
Board of Education, London	o					Administration
Carleton University			o		o	
Confederation College		o			o	
CJRT-FM			o		o	

	ELEMENTARY SECONDARY	VOCATIONAL TECHNICAL	UNDER-GRADUATE	GRADUATE	PROFESSIONAL & CONTINUING	COMMENTS
CJRT-FM			o		o	
Georgian College		o				
Guelph University			o		o	
Humber College		o				
Laurentian University			o			
Ministry of Education	o					
North-East Ontario Telehealth Network					o	
Ontario Institute for Studies in Education				o		
Ontario Institute for Studies in Education				o	o	Research
Sheridan College		o			o	
Telemedicine for Ontario					o	
Television Language Training Inc.					o	
TV Ontario	o	o	o		o	(1)
Toronto Institute of Medical Technology		o			o	
University of Ottawa			o		o	
University of Western Ontario			o		o	
Wilfrid Laurier University			o			

	ELEMENTARY SECONDARY	VOCATIONAL TECHNICAL	UNDER-GRADUATE	GRADUATE	PROFESSIONAL & CONTINUING	COMMENTS
QUEBEC						
Canal, Inc.						(1)
Radio Quebec						(1)
Tele-Universite			o			
University of Montreal			o			
University of Quebec						Research, A
NEW BRUNSWICK						
Dr. Everett Chalmers Hospital					o	
New Brunswick Hospital Association					o	
University of Moncton			o			
University of New Brunswick			o			
NOVA SCOTIA						
Atlantic School of Theology					o	
Dalhousie University			o	o	o	
Mount Saint Vincent University			o			(1)
Technical University of Nova Scotia					o	
University Saint-Anne			o			
NEWFOUNDLAND						
Memorial University		o	o	o	o	

	ELEMENTARY SECONDARY	VOCATIONAL TECHNICAL	UNDER-GRADUATE	GRADUATE	PROFESSIONAL & CONTINUING	COMMENTS
NATIONWIDE						
Canadian Teleconferencing Network						(1)
Continental Bank					o	
Darome Connection						(1)
Telecom Canada						(1)
Developing Countries Farm Radio Forum					o	

CHART C: PROGRAMME AREAS

CHART C: PROGRAMME AREAS

ORGANIZATION:	HEALTH SCIENCES	EDUCATION	ENGINEERING/ TECHNOLOGY	ARTS & SOCIAL SCIENCES	NATURAL SCIENCES	BUSINESS/ MANAGEMENT	OTHER
BRITISH COLUMBIA							
Knowledge Network		o					(1) General Adult
North Island College			o	o	o	o	
Open Learning Institute			o	o	o		
Simon Fraser University		o		o			
University of British Columbia	o	o		o	o		
University of Victoria	o	o	o			o	
ALBERTA							
Access Alberta		o					(1) General Adult In School
Alberta Correspondence School							School-level Instructional Support
Alberta Hospital Association	o						
Athabasca University			o	o	o	o	
Lakeland College		o					Literacy
Lethbridge Community College		o					
Mount Royal College	o						
Northern Alberta Institute of Technology			o			o	
University of Alberta Medical Education	o						
Southern Alberta Institute of Technology	o		o	o		o	

	HEALTH SCIENCES	EDUCATION	ENGINEERING/ TECHNOLOGY	ARTS & SOCIAL SCIENCES	NATURAL SCIENCES	BUSINESS/ MANAGEMENT	OTHER
University of Alberta Instructional Systems	o						General Educational Support Industrial Training
University of Calgary	o	o		o			
SASKATCHEWAN							
Saskatchewan Education, Correspondance School		o					School Level Support
Saskatchewan Indian Federated College						o	
Saskatchewan Telehealth Consortium	o						
University of Regina, Extension			o	o		o	
University of Saskatchewan Extension		o	o	o	o		
MANITOBA							
Brandon University		o		o			
Inter-university North		o		o	o	o	
Manitoba Department of Education		o		o	o	o	
University of Manitoba	o	o		o	o	o	
ONTARIO							
Board of Education, London		o					In-school Instructional Support
Carleton University			o	o			
Confederation College	o	o				o	
CJRT-FM	o					o	

	HEALTH SCIENCES	EDUCATION	ENGINEERING/ TECHNOLOGY	ARTS & SOCIAL SCIENCES	NATURAL SCIENCES	BUSINESS/ MANAGEMENT	OTHER
Georgian College	o						
Guelph University					o		
Humber College	o						
Laurentian University				o	o	o	
Ministry of Education							Instructional Support for School-level Students
North-East Ontario Telehealth Network	o						
Ontario Institute for Studies in Education		o					
Ontario Institute for Studies in Education		o					
Sheridan College	o		o	o		o	
Television decision for Ontario	o						
Television Language Training Inc.		o					English as a second language
TVOntario		o					(1) General Adult In-school Support
Toronto Institute of Medical Technology	o						
University of Ottawa	o	o	o	o		o	
University of Western Ontario	o			o		o	
Wilfrid Laurier University				o	o	o	

	HEALTH SCIENCES	EDUCATION	ENGINEERING/ TECHNOLOGY	ARTS & SOCIAL SCIENCES	NATURAL SCIENCES	BUSINESS/ MANAGEMENT	OTHER
QUEBEC							
Canal, Inc.							(1)
Radio Quebec		o					(1) General Adult In-school Support
Tele-Universite			o	o		o	
University of Montreal		o		o	o		
University of Quebec							Administrative
NEW BRUNSWICK							
Dr. Everett Chalmers Hospital	o						
New Brunswick Hospital Association	o						
University of Moncton	o	o		o		o	
University of New Brunswick	o	o		o	o		
NOVA SCOTIA							
Atlantic School of Theology				o			
Dalhousie University	o					o	
Mount Saint Vincent University	o			o		o	(1)
Technical University of Nova Scotia			o				
University Saint-Anne				o			

	HEALTH SCIENCES	EDUCATION	ENGINEERING/ TECHNOLOGY	ARTS & SOCIAL SCIENCES	NATURAL SCIENCES	BUSINESS/ MANAGEMENT	OTHER
NEWFOUNDLAND							
Memorial University	o	o		o	o	o	
NATIONWIDE							
Canadian Teleconferencing Network							(1)
Continental Bank						o	
Darome Connection							(1)
Telecom Canada							(1)
Developing Countries Farm Radio Forum	o		o		o		Third World Agriculture

PART III: DIRECTORY

Section A - lists projects by province with institutions in alphabetical order within each province. Organization by province became important because in many cases significant co-operation and inter-organizational arrangements exist on a province-wide basis.

Section B - summarizes satellite and Telidon field trials or experimental projects.

Section C - identifies some additional projects using communication technologies in instruction as well as in research and electronic messaging. It also identifies some recent publications and a list of associations or other relevant organizations.

Section A: Project Descriptions

Each of the descriptions are based on written materials received from the organizations included, ranging from direct responses to the parameters laid out in the questionnaire (see Appendix A), professional papers, promotional materials and university calendars. Telephone contacts supplemented these materials. Draft descriptions prepared by the author were mailed for comment to the organizational contact person for review.

Sponsoring Organization: **KNOWLEDGE NETWORK OF THE WEST COMMUNICATIONS AUTHORITY, BRITISH COLUMBIA**

EDUCATIONAL MISSION

- o established in 1980 as a non-profit society to "establish, maintain and operate a telecommunication network" and to "assist and collaborate with the universities, colleges, provincial institutes, school districts, ministries and agencies of the province in the development and delivery of educational programmes and materials";
- o provides equal learning opportunities to the varied learning needs of all the province's residents while also ensuring quality of learning ;
- o identifies with public education agencies in British Columbia which potentially provide programs which cover all levels of education;
- o KNOW Network is a member of the Knowledge Group that also provides conferencing and data services, via a cable system, to the hospitals and universities in the urban areas around Vancouver.

COMMUNICATION TECHNOLOGIES

- o provides the electronic highways for educational television services which are sponsored by participating educational institutions;
- o operates an audio teleconference service which can be leased for interaction between participants and co-ordinators of a given session;
- o uplinks to the Anik-C satellite from the Network's distribution centre on the campus of the University of British Columbia (UBC) to a leased dedicated TV channel from Telesat Canada. The signal is picked up in approximately 190 communities by television receiver earth stations (TVRO) of from 1.8 to 3 metres in diameter antenna. Approximately 85 percent of the population of B.C. can receive KNOW signals through their local cable service. In some communities the service is being rebroadcast;
- o does not own TVROs, or viewing equipment, which are owned by community colleges, school districts, communication societies and community cable systems;
- o uses the studio facilities of UBC;
- o operates a 20-port audioconferencing bridge, which does not include permanent field sites, each user provides their own end-equipment. At present, 15 community colleges, 5 institutes, 3 universities and 2 school districts operate their own permanent sites.

PROGRAMME OFFERINGS

- o offers the delivery system for Open Learning Institute, UBC, University of Victoria, and Simon Fraser University (see for further details under those institutions), which represent up to 65 percent (98 hours per week) of the overall programming;
- o undertakes its own productions or purchase in the areas of more general education, where it works jointly with community groups;

o schedules the sessions in co-operation with the participating institutions and assists them in ensuring instructional quality. Programmes range from sewing to nursing degree completion, automotive trade qualification to professional education for dentists.

EDUCATIONAL DELIVERY SYSTEM

o for instructional programming this support is provided by the sponsoring organization;
o for general education, KNOW has a more active role, ranging from needs assessments to the development of programmes jointly with community groups such as the Arthritis Foundation and to the review and assessment of programmes considered for purchase. Local animation and learning activities in the latter category are provided by the community groups;
o the organization of viewing and learning activities, i.e. group viewing at a community college or home-based viewing, is the responsibility of the sponsoring organization.

ENROLMENT

o in 1983/84 almost 13,000 people enrolled in courses offered through KNOW, while over 300,000 people were regular viewers;
o enrolment is the responsibility of the sponsoring organizations which provide counselling, registration, course materials, tutorial support and examination.

ADMINISTRATION

o is staffed with 38 personnel and managed through three divisions: Network Services, Learning Systems and Finance and Business;
o operates the system, investigates and plans service expansion and plans and promotes the use of the province-wide service;
o contracts for system engineering and planning as required.

SOFTWARE DEVELOPMENT

o for instructional programmes which lead to some form of accreditation, the institution offering the programme is responsible for the total instructional package. KNOW will assist as required;
o in informal areas of learning, such as for preschool children or family programming, KNOW's staff will review programmes and initiate and create joint programming with special interest or community groups;
o improves the quality of learning resources offered via the system, e.g. assisting the on-camera instructors, and makes resources more accessible through the establishment of learning centres;
o involves educational institutions and initiates and develops scheduling policies.

TRAINING

- o focuses on assisting on-camera instructors;
- o achieves participant training primarily through animation and orientation sessions.

FINANCING

- o an annual non-capital expenditures of about $3 million, of which approximately $1 million goes toward satellite costs, approximately $800,000 toward network operation, and about $400,000 towards learning systems. The remainder goes toward administration and public affairs.;
- o income is derived from the Ministry of Universities, Science and Communications, as well as from the Ministry of Education and from interest income.

THE FUTURE

- o includes the development of an addressable system for specific audiences, e.g. physicians; a second TV channel with a separate reception system and the accelerated establishment of learning centres;
- o increased thrust in skills training and vocational education.

SERVICES

- o full range of consulting services, including planning, management and operations support, technology design and procurement;
- o sale of video and print materials;
- o site visits are welcome.

CONTACT

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Sponsoring Organization: **NORTH ISLAND COLLEGE (NIC), BRITISH COLUMBIA**

EDUCATIONAL MISSION

- o created in 1975 as a comprehensive decentralized community college to serve a vast region with a small population base, heavily relying on non-traditional delivery systems, based upon local learning centres and local tutors.

COMMUNICATION TECHNOLOGIES

- o using a computer network, interactive television and television broadcasting as well as audioconferencing;
- o computer assisted learning (CAL) software is accessed by students in learning centres with distributed terminal access;
- o three learning centres equipped with 32 computer terminals were served in the first year of operation sharing leased lines to the centres with administrative uses. The network is being extended to an additional eight centres;
- o the network provides electronic mail services;
- o a computer terminal at the college is fully dedicated to instructional uses;
- o the interactive television courses are distributed live via the KNOW network. Students interact in real-time with the course professor through dial-up toll face telephone services from their houses or from the learning centres;
- o the broadcast television courses are taped programmes distributed via the KNOW network. The tapes are also available at the learning centres;
- o audioconferencing is used only occasionally for special sessions. The service is leased as needed.

PROGRAMME OFFERINGS

- o 300 hours of CAL courseware for a computer technology programme, representing the equivalent of a full-year university level course;
- o the two weekly interactive TV programs are first year English and first year psychology courses. They are 15 weeks.
- o 16 broadcast TV courses cover biology, geography, geology, sociology, social psychology, arts, business administration, astronomy and computer technology.

EDUCATIONAL DELIVERY SYSTEM

- o course registration is continuous through the regular college channels and is the same for all distance education courses;
- o the courses offer transfer credit to any of the universities in the province;
- o all students at the learning centres are assigned to local tutors who personalize and individualize the learning and assist the student's integration into the college environment;
- o the CAL programming was developed to form the core of the student's learning experience;

- o each of the 30 course units includes CAL exercises, textbook readings and a marked assignment;
- o the software provides student files, exhibiting student performance and assignments for review and ultimately for counselling by the course tutor;
- o students in the interactive and in the broadcast courses receive print course tutor by phone (toll-free) at the office. At communities with learning centres local tutors assist the learners. Examinations are invigilated.

ENROLMENT

- o NIC registered through its learning centres in 1984/85 about 7500 credit and 6000 non-credit students;
- o in the first year over 100 students enrolled. The English course registered 100 students, the psychology course 170;
- o learners tend to be employed residents of the region for whom the self-paced structure of the courses is particularly suitable;

ADMINISTRATION

- o because of its decentralized nature, NIC does not have a distance education division, rather, it operates fully as a distance education institution;
- o NIC has a staff of 70 full-time and 300 part-time employees, including the local tutors;
- o development of the CAL programming was contracted out since the necessary in-house capabilities were not available;

SOFTWARE DEVELOPMENT

- o in the CAL (and to a degree in all NIC courses) the course development is a team effort between subject matter experts, programmers, writers, editors and instructional designers;
- o the CAL course development including print study guides needed to be highly interactive to transfer information from the experts to the writer;
- o the broadcast TV courses are purchased commercially;
- o the interactive TV courses are prepared and presented live by the course tutor who is the subject matter expert.

TRAINING

- o students receive guides and have the assistance of local tutors should they encounter problems with aspects of the programming;
- o local tutors are introduced to adult learners as well as to the CAL courses through working sessions;
- o a videotape and interactive TV sessions are available to help students improve their study skills.

FINANCING

- o the CAL programme is supported by a federal government grant, covering initial costs. On-going costs are covered through the college's regular budget;
- o access to the KNOW network is free-of-charge. The telephone course costs about $700 per month.

THE FUTURE

- o more courses in a computer interactive mode, particularly for micro computers;
- o more courses via interactive television.

SERVICES

- o consulting, training, strategic planning.

CONTACT

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Sponsoring Organization: **OPEN LEARNING INSTITUTE OF BRITISH COLUMBIA**

EDUCATION MISSION

- o created in 1978 to exclusively serve the home study needs of British Columbians and provide through distance education methods educational opportunities for those who cannot attend traditional institutions;
- o has the authority to grant a bachelor's degree; also offers certificate and diploma programmes as well as adult basic education programmes leading to grade 10 and grade 12 completion;
- o offers courses in adult basic education, career/technical/vocational education, university and non-credit education;

(In 1984, the Open University Consortium of British Columbia was created and combined classroom-based and home study courses from member institutions, to offer a recognized university degree through OLI. The consortium is formed by the University of British Columbia, Simon Fraser University, the University of Victoria and the Knowledge Network.)

COMMUNICATION TECHNOLOGIES

- o course packages are primarily print-based, some include audio or video tapes;
- o twelve courses have TV components, some of which are optional, others are mandatory. The television programmes are distributed via the provincial educational communications authority, the Knowledge Network (see KNOW section for more details);
- o internal production facilities exist for its print materials and for audio tapes; for TV production outside facilities are used;
- o the telephone is used extensively by the institution for student advisory service, registration, help with assignments and tutorial support and access to library services. Toll-free telephone service is available to students and collect calls are accepted. Each of the course tutors has a special phone installed where students call collect or they can use an 800 number;
- o a computer network links OLI in Vancouver to three regional offices, providing electronic mail services access to student records, and on-line registration;
- o a Telidon field trial with the telephone company was undertaken in 1981/82 adapting educational materials for the Telidon system.

PROGRAMME OFFERINGS

- o over 175 courses are offered by distance education in its three general programme areas; twelve have a TV component;
- o most of the TV courses are bought externally with some wrap-around footage. Four of these courses are in the humanities, two in fine arts, one each in astrology, biology, computing, psychology, sociology and social sciences.

EDUCATION DELIVERY SYSTEM

- o each student has a tutor assigned for a given course who marks assignments and is available via toll-free telephone at specified times to answer course-related questions and discuss assignments or examinations;
- o each student receives a course package containing texts, project materials, assignment files and other materials, including, when appropriate, a KNOW-TV schedule;
- o courses using TV or those based exclusively on print materials use the same educational support activities;
- o five annual semester start-up points are offered. Course completion is expected within two, four, or 6 months. About 60 examination centres are established around the province six times a year. o participants in non-credit courses are not required to complete assignments, but a tutor is available by phone to help understand the materials;
- o community colleges in B.C. will take OLI courses and offer them locally to complement their own programme.

ENROLMENT

- o has enroled since inception more than 50,000 people. The majority of OLI learners are part-time and female;
- o enrolment in career/technical/vocational education represents over 40 percent, degree programmes represent about 35 percent, and the remainder is in adult-based education;
- o course completion rate is about 55 percent. (If they don't finish the course one would assume they have dropped out or quit.) A key reason for not finishing a given course is the fact that most courses require more work (e.g. from 6 to 10 hours per week per course) than students expected.

ADMINISTRATION

- o in-house staff of 150 as well as 235 tutors, course writers and contract consultants;
- o the three programme areas have their separate pool of co-ordinators, content people, instructional designers and course writers. Two of the in-house course designers have TV production experience;
- o registration, examination and tutorial services, printing and materials distribution are centrally provided;
- o one liaison staff person is responsible for reviewing and scheduling time on the KNOW network on a six-month schedule.

SOFTWARE DEVELOPMENT

- o the programme director and the in-house course designer will find the content matter specialist to write the course materials;
- o the course designer maintains a fair degree of involvement regarding the structure of the course and its instructional consistency and will translate the content information into different media;
- o print and audio production is handled in-house. TV programmes to-date are largely purchased, and when wrap-arounds are produced, facilities are locally rented.

TRAINING

Occurs in two main areas:

- o course writers are introduced to the house standards by the course designers through a manual and through personal sessions;
- o tutors receive training in specially designed workshops. With the limited turnover of tutors, these workshops are changing in focus from tutoring techniques to more advanced professional development sessions;
- o visiting internships are offered primarily to staff from Asia and Pacific Rim distance teaching institutions.

FINANCING

- o annual budget of $8.2 million of which about 90 percent is provided by the province; the remainder comes from student fees;
- o access to the KNOW Network is free of charge, but OLI has to cover its own TV (as well as radio and print) production costs. The annual telephone service charges are about $170,000, a large portion of these stem from student calls.

THE FUTURE

- o continued experimentation with different technologies and approaches to distance education, including field trials and interactive sessions, using the KNOW Network;
- o exploration of computer-based automatic student registration techniques.

SERVICES

- o provides orientation, assistance and training in Canada and overseas;
- o will assist in broad strategic planning as well as in tailored training for courseware design, or administration of open learning systems.

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Sponsoring Organization: **SIMON FRASER UNIVERSITY, CENTRE FOR DISTANCE EDUCATION, CONTINUING STUDIES, BRITISH COLUMBIA**

EDUCATIONAL MISSION

- o to provide credit courses, equivalent in all respects to courses offered on campus for those British Columbian students who, because of geographical location or other circumstances, cannot attend classes and lectures on campus.

COMMUNICATION TECHNOLOGIES

- o all courses have a print base. Several courses supplement print materials with audiotapes;
- o 32 courses have an additional television component, which varies from a twenty-minute pre-existing film, to a series of 26 hour-long programs. These are distributed via KNOW;
- o all courses also have a telephone component - as the tutors have weekly telephone "office hours";
- o the audioconferencing bridge of KNOW is leased for occasional lectures.

PROGRAMME OFFERINGS

- o Simon Fraser University offers 40-45 degree credit courses, in each of three entry-periods, in January, May and September;
- o criminology, education and kinesiology are the main programme areas, but a variety of arts courses are also available;
- o all courses are for a 16-week period including final examinations;
- o courses range from first-year to fourth-year level courses.

EDUCATIONAL DELIVERY SYSTEM

- o registration and admission procedures are the same as for on-campus students;
- o counselling is available through the Academic Advice Centre as well as through the academic co-ordinators in the areas of criminology, education and kinesiology;
- o students receive all course materials from the Centre at the beginning of the course, including assignment sheets, which give precise details of all assignments including completion dates;
- o marked assignments are either mailed to students or collected from the Centre for Distance Education;
- o students receive an introductory letter and phone call from their tutor and may receive other tutorial letters during the course;
- o final examinations in the greater Vancouver area are written on-campus, while out-of-town examinations are supervised by a proctor.

ENROLMENT

- o over ten years of operation an annual enrolment of 6,000 is achieved with 1,700-2,000 students each semester;
- o 58% of these students live within a 30-mile radius of Simon Fraser University and 42% live in other areas of B.C. or Canada;
- o 56% of the students are female and 44% are male.

ADMINISTRATION

- o the Centre for Distance Education has 16 staff members; the academic staff, who author the courses or tutor the students, are SFU faculty members;
- o courses are developed in close co-operation with the academic departments which appoint the course authors and tutor/markers to work with the Centre; they are paid by the Centre;
- o a co-ordinator is in charge of all televised materials on KNOW, including scheduling and production supervision;
- o staff of the Instructional Media Centre provide graphic support for the course materials.

SOFTWARE DEVELOPMENT

- o course materials reflect the course content offered in the classroom; their inclusion in Centre offerings is a joint decision by the faculty and the Centre;
- o the course author, in co-operation with an instructional designer, prepares the course materials, audiotape lectures and television components; acquisition of copyright and related tasks is the responsibility of the Centre;
- o each course is approved by the appropriate academic department before it is offered or before revisions are instituted in courses which need frequent updating;
- o continuous and end-of-semester course evaluations by students and tutor/markers are part of each course, with the result feeding into course revisions.

TRAINING

- o handbooks serve as a guide for course authors, tutor/markers and students;
- o all tutor/markers attend orientation meetings;
- o orientation sheets are available to prepare audio-tape lectures;
- o personal advice is given about TV presentations.

FINANCING

- o annual revenues of just under $1.2 million come equally from provincial grants and tuition fees;
- o salaries represent about $800,000, course development about $200,000 and operations about $190,000, including telephone charges, studio, etc.;
- o access to KNOW is free of charge.

THE FUTURE

o introduce at lease 10 new courses, primarily in computer sciences, Canadian studies and communications and involving innovative technologies, such as computerconferencing.

SERVICES

o sale of course materials and consulting.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF BRITISH COLUMBIA, UBC ACCESS BRITISH COLUMBIA**

EDUCATIONAL MISSION

- o to open the university's expertise and resources to residents outside the metropolitan area;
- o to enable students who find it difficult or impossible to attend classes on campus to earn a credit degree by studying at home.

COMMUNICATION TECHNOLOGIES

- o TV programme distribution via KNOW (see appropriate section), as well as by videotape;
- o audioconferencing system, using the KNOW bridge, and other bridges sometimes used in conjunction with live TV broadcasts;
- o audio and videotape on-campus production;
- o toll-free telephone services for registered students.

PROGRAMME OFFERINGS

- o courses using communications-based delivery methods are offered in 1985/86 by the faculties of art, applied science, agriculture, education, forestry, science and health sciences. Over a year, these activities represent about 6,800 student hours via KNOW and videotape, and 4,100 student hours of audioconference;
- o forestry offers nine off-campus degree credit courses, which are primarily print-based with free student-tutor telephone service. A dendrology course is designed for TV delivery by KNOW; principles in forestry economics is on audiotapes with print support;
- o nursing offers five off-campus undergraduate degree credit programmes all of which include print, video and telephone tutorials. Five have KNOW TV components;
- o agricultural sciences offers two degree credit and one non-credit course for home study. The print components are complemented by broadcasts on KNOW;
- o education is building its KNOW-supported instructional offering to make available by distance education all of the courses required for the diploma in curriculum and instructional studies. Non-credit professional development activities extensively use KNOW and audioconferencing;
- o health sciences supports professional development, continuing education programs via KNOW in dentistry and by audioconferencing in medicine, nutrition and pharmacy as well as print and multi-media packages for independant study in pharmacy and nursing.

EDUCATIONAL DELIVERY SYSTEM

- o student admission to distance education credit courses follows the same requirements and procedures as for on-campus students. Registration for Guided Independant Study is by mail or in person;
- o most guided study courses have six sessional offerings per year as well as six examinations, which can be taken at centres throughout the province.

- o each faculty provides its own academic support to off-campus students, including advisor and telephone tutorials. Tutors most commonly are those faculty members who are responsible for the course which they also teach on-campus;
- o in most courses, student support services are arranged through the Guided Independant Study programme. This includes free telephone access to tutors and to library resources; a directory of other students in a given course to facilitate study groups; administrative support, such as handling assignments, arranging laboratory components, or facilitating supporting group meetings; a full package of learning materials and student/study guides; assignments to be marked by tutors, and self-testing materials;
- o off-campus students participate in courses either individually from their homes or they gather at one of 25 sites, established at community colleges or hospitals. The latter is particularly utilized in professional development activities.

ENROLMENT

- o total enrolment in 1984/85 off-campus courses at UBC was 1,828 in degree credit, 11,051 in non-credit, and professional development;
- o distance education courses using communication technology typically draw varying numbers of participants, with 80 students in five nursing programs, over 150 students in six forestry courses, over 400 expected registrants in agricultural sciences, over 600 registrants in the health audioconferences and about 90 in the dentistry telecasts. The education programmes expect annually about 900 enrollments in the diploma programme and about 1,750 in the professional development programmes;
- o most students are working professionals, studying part-time toward upgrading their professional education.

ADMINISTRATION

- o most distance education programmes are operated out of the Guided Independant Study office, some credit courses and most professional development programmes are operated through the academic faculties themselves;
- o individual faculties set up their own course teams for academic course development. They are represented on a Campus-Wide Co-ordinating Committee for Distance Education;
- o Guided Independent Study and Audiovisual Services support the faculties with distance education methods and techniques.

SOFTWARE DEVELOPMENT

- o faculty members, who typically also teach the course on-campus, develop the course materials for distance education. They receive support from a course designer and the audiovisual services department;
- o the first time a course is offered it undergoes evaluation and is redesigned as necessary.

TRAINING

o the team approach to course materials development is the primary vehicle for faculty training.

FINANCING

o individual course costs range from $12,500 for print courses to 55,000 for courses with audio and video components;
o overall, about $15,000 is spent on audioconferencing services per annum, representing 30 hours of programming;
o access to the KNOW TV distribution system is free of charge;
o in 1986/87, expects to spend roughly $2 million on distance education, of which about 50% will be provided by a special provincial allocation, and 25% each by the university budget and course fees. A significant portion of these funds will go into the support of technology-based courses.

THE FUTURE

o increase number of distance education courses, leading in education to a full diploma programme, in nursing to the complete 3rd and 4th years of a baccalaureate;
o increase use in KNOW;
o exploration of computer technology for student registration by phone, for submitting and grading course assignments and for conferencing as an instructional tool, particularly in the education faculty.

SERVICES

o sale of course packages;
o consulting in distance education methods and in-course production.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF VICTORIA, UNIVERSITY EXTENSION AND COMMUNITY RELATIONS, BRITISH COLUMBIA**

EDUCATIONAL MISSION

The University of Victoria, as one of three comprehensive provincial universities, initiated in 1976 its distance education services to:

- o provide equality of access of the university's services throughout British Columbia regardless of geographic residence of the student;
- o to provide high-quality credit and professional development courses equivalent to on-campus instruction.

COMMUNICATION TECHNOLOGIES

- o a variety and mix of media including television, video and audio cassettes, computer etc., is used depending on academic content, student characteristics, etc.;
- o print is the cornerstone in the courses, for delivery of content and as a study guide. Materials are produced on campus;
- o more than 20 courses use television as an integral part of the learning system to demonstrate and elaborate concepts (see KNOW description). The University of Victoria has accessed the uplink via microwave, or bicycled TV broadcast tapes. In addition, videotapes are provided to students as part of a course;
- o TV studio facilities are available on campus;
- o audiocasettes are employed in a growing number of courses to raise questions and to explain. Production facilities are available on campus;
- o courses involve audioconferencing, leasing time on KNOW's bridge. Participants in conferences are either home-based or groups of students who assemble at local conference sites (e.g. at a community college);
- o computer programmes are employed for instruction, simulations or problem-solving exercises in diskette form (and will soon be available on-line);
- o all distance courses rely on frequent telephone contact between student and faculty;
- o dial-up facilities of the carrier are used for all narrowband communication links.

PROGRAMME OFFERINGS

- o emphasis on the development of academic degree credit programmes over ad-hoc individual courses. Programmes are developed primarily to respond to the needs of working professionals in the areas of education, social work, childcare, nursing and public administration;
- o key distance education programmes include a diploma program in Public Sector Management for managers in public sector agencies such as provincial and municipal governments and crown corporations; a program of Advanced Studies in Cultural Resources Management for professionals working in museums, art galleries, historical sites, and heritage planning groups;

- o a certificate program in Computer-based Information Systems for managers, businessmen and professionals from non-computing disciplines;
- o courses are offered during the academic semesters so that lecturers and tutors are available to the student for counselling and support.

EDUCATIONAL DELIVERY SYSTEM

- o each distance education student is supported by a number of people from the academic faculties and from the Extension Division to provide unity for the student;
- o professional organizations play a significant role in recruiting students for a programme since they often participated in its identification;
- o admission requirements are the same as for on-campus students, with special provisions for mature students
- o registration is centralized and follows the same process as for on-campus students, using mail or telephone. The computerized registration system in particular, provides flexibility for distance education students;
- o the programme staff provides administrative support to the student, i.e., manages the student files;
- o academic advising is the joint responsibility of the student's programme co-ordinator and the faculty advisor;
- o instructional support for an individual course is provided by the instructor and, increasingly by a course tutor, through a combination of face-to-face meetings, telephone conversations and audioconferences with groups of students;
- o student evaluation and examinations are the responsibility of the instructor for academic criteria, and of the programme co-ordinator for their administration;
- o examination procedures vary among courses and represent a combination of individual tests written under proctor supervision, take-home examinations and written assignments;
- o computer-supported library services provide access to reference and recommended readings. Use of local library facilities is encouraged in some courses with the placement of microfilm catalogue materials in facilities near groups of students;
- o print material, cassettes, videos or microcomputer hardware is available to students as part of the course package or on a lease/rent basis.

ENROLMENT

- o 1,500 registrations in the academic year 1983-84. Registrants are located in all parts of the province;
- o almost 70% of the students are female and most are fully or part-time employed;
- o one-quarter of the students are between 40 and 49 years of age and engage in education opportunities which enhance their career and job mobility;
- o course completion rate lies at a medium of 87%.

ADMINISTRATION

- o the University Extension Division staff is composed of more than 25 professional and academic staff who are responsible for planning, budgeting, administering and co-ordinating all off-campus credit programmes and courses offered by any of the university's faculties;
- o a full-time Extension Programme Co-ordinator at each of the 5 schools and faculties develops jointly with the faculties programmes that it wishes to develop for distance delivery;
- o the distance education group, a central extension service unit, provides co-ordination, instructional design and supervises the production of all distance education materials, with assistance from other units, e.g., TV production. Content is the responsibility of the faculty;
- o the extension program coordinators are responsible for every aspect of course administration including monitoring the registration process, organizing faculty contact, dealing with all student administrative issues, and co-ordinating the student evaluation system;
- o co-ordination of TV airtime, rental of the conference bridge, use of local facilities, e.g. libraries or audioconference sites, is the responsibility of extension co-ordinators.

SOFTWARE DEVELOPMENT

- o for each approved course a project development team produces the course materials under the leadership of the extension co-ordinator, with participation from the content specialist, the distance education consultant and production specialists;
- o the formulation of the instructional design is given a central role in the course development. Attention is paid to the production of a total instructional package, using a variety of media;
- o materials developed for distance education are also used on campus.

TRAINING

- o training of faculty is integrated into the team approach to course development.

FINANCING

- o access to TV distribution via KNOW is free of charge for provincial educational institutions;
- o income is derived from student fees, a direct provincial grant for distance education, and from the university operating budget which allows Extension and other units, such as TV or print production to carry out the necessary work on an on-campus rate chargeback system.

THE FUTURE

- o anticipation of a significant growth of students in degree programmes and for professional upgrading;
- o evolution of collaborative arrangements among different institutions to real-life economies of scale for courseware, and the sharing of courseware at cost;
- o significant impact of computer-communication technologies in course development and in course delivery, for student administration and for the management of learning processes;
- o compilation of a summary evaluation of the university's distance education activities.

SERVICES

- o sale of courseware in a wide variety of subject areas;
- o consulting services in all aspects of distance education;
- o training/internships.

CONTACT

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Sponsoring Organization: **ACCESS NETWORK, EDMONTON ALBERTA**

EDUCATIONAL MISSION

Access Network is the trade name of the Alberta Educational Communications Corporation that is administered by the Alberta Educational Communications Authority. It was established in 1973 through the consolidation of a number of existing agencies that provided educatinal television, radio production and broadcast services, as well as media duplication and distribution services.

Its mission is to support formal and informal educational services for all age groups through the acquisition, development, production and distribution of educational media materials, including support for distance education and part-time learning opportunities.

COMMUNICATION TECHNOLOGIES

- o Access Network's educational TV services are distributed via the Anik-C Ku-band satellite-to-cable or rebroadcast systems, and to TVRO-equipped community learning centres and homes (1.8 metre dishes). A grant program facilitates establishment of the learning centres by community organizations including post-secondary institutions, school boards and libraries;
- o Access Network - CKUA AM.FM is also distributed via the Anik-C satellite to 14 transmitters and cable systems located within the province;
- o toll-free telephone service supports interactive, instructional programming, while audioteleconferencing systems owned and operated by educational institutions (over 200 audioteleconferencing centres in the province) are used in conjunction with several radio and television-supported courses;
- o regular uplink service to the Anik-C satellite is contracted from a commercial broadcaster in Edmonton. A fully dedicated transponder on Anik-C is leased through Alberta Government Telephones from Telesat Canada;
- o a transportable uplink is occasionally leased for remote TV origination.

PROGRAMME OFFERINGS

- o Access Network distributes a broad range of formal and informal educational radio and television programming but does not, on its own, offer formal credit or non-credit courses;
- o programming priorities are identified through ongoing liaison with user agencies and through audience surveys;
- o service includes 94.5 hours per week of television programming and 125 hours per week of radio programming;
- o more than 300 hours of new television programming is produced annually, while existing inventory or acquired materials are used for the balance of the TV broadcast schedule;
- o produces (or acquires) and broadcasts, in conjunction with Alberta universities and colleges, approximately 12 TV-supported telecourses per annum for credit (e.g., Small Business Management, Geology, World History, Psychology, Introduction to Microcomputers, Early Childhood Development, etc. - see Athabasca University as an example for details);

- o in co-operation with Alberta Education and post-secondary institutions, produces curriculum-related radio programs representing about 10% of the radio services;
- o in co-operation with the Alberta Teacher's Association, recently initiated Homework Hotline, a toll-free telephone service to assist junior highschool students with mathematics and language homework. Twice weekly, this service provides three hours of telephone support and one hour of televised instruction;
- o television and radio programmes that support the primary and secondary education curriculum are included in daytime broadcast schedules.

EDUCATIONAL DELIVERY SYSTEM

- o Access Network reaches more than 500,000 households via cable and rebroadcast systems and another 100 communities through community learning centres;
- o students in credit courses register directly with the appropriate educational institution that is responsible for all administrative and instructional support including print materials, study guides, tutorial services, and assignments/examinations;
- o a number of informal learning programs and series have print support materials that can be purchased by general viewers.

ENROLMENT

- o students enroll in credit or non-credit courses directly with the offering agencies. Average enrolment for credit telecourses was approximately 50 persons per course during the first telecourse offerings.

ADMINISTRATION

- o Access Network has a staff of over 210, organized into three divisions: Educational Technology and Administration; Television and Market Development; and Radio;
- o a Planning and Research unit undertakes needs assessment, program evaluation and long-range corporate planning;
- o a Utilization Unit provides advice and consultation on educational media utilization and an Educational Technology Centre is involved in planning, development, and utilization of new technological advancements (e.g., interactive laserdisc, satellite downloading of software, etc.);
- o a Media Resource Centre has full capability for print, slide/tape, film, video and audio duplication and distribution;
- o two major television production facilities and one audio production centre (radio station) support production and broadcast requirements.

SOFTWARE DEVELOPMENT

- o video, audio, and computer software/courseware materials are developed and produced three ways: developed and produced by Access; co-produced with client agency using client's facilities; or contracted out to the private sector;
- o informal learning materials are developed by the corporation in consultation with client agencies;
- o formal learning materials are co-developed with client agencies that have ultimate responsibility for content;
- o Access Network regularly employs a multi-disciplinary production staff and hires additional design, development, and production expertise as required.

TRAINING

- o media consultants and educational technologists provide advice and assistance in effective media utilization to educators, community groups, and government agencies. Workshops and seminars are offered throughout the province and consultants are available to individual instructors for advice and assistance.

FINANCING

- o the operating budget of Access Network for 1985/86 is approximately $16 million. The budget includes a provincial government grant and other revenues from program sales, investments, and project-specific production grants;
- o satellite transmission costs represent about 5.5% of total operating expenses. About 36% of the total budget is allocated to a production pool for externally purchased materials, supplies, services, and talent.

THE FUTURE

- o continued expansion of the distribution network through cost-sharing arrangements (grants to qualifying applicants) for the purchase of TVROs is anticipated;
- o increasing use of transportable satellite uplinks for remote program origination is likely;
- o exploration of Subsidiary Communications Multiplex Operation (SCMO) technology to meet special needs of specific groups is underway (e.g., for software downloading, in-service education for professionals);
- o increased involvement in planning and development of interactive, user-controlled, non-broadcast technologies such as videodiscs/laserdiscs is taking place;
- o collaborative production and distribution projects with neighbouring provinces are under discussion.

SERVICES

- o acquisition, development, production, distribution of educational media materials;
- o media utilization workshops and seminars;
- o sale of video, videodisc, audio and print products;
- o consulting services for educational media design and utilization;
- o assessment of educational media requirements, and evaluation of media products.

CONTACT

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Sponsoring Organization: **ALBERTA CORRESPONDENCE SCHOOL - ELEMENTARY DEPARTMENT, ALBERTA**

EDUCATIONAL MISSION

o to provide contact among elementary-level correspondence students; and to discuss common issues and supplement regular programmes.

COMMUNICATION TECHNOLOGIES

o audioconferencing services leased from the provincial government telephone company establish a channel for discussion among individual students;
o a conference telephone at the correspondence school serves the teachers; students use handsets in their own homes.

PROGRAMME OFFERINGS

o a monthly one-hour conference call from November to May;
o sessions are supplementary to regular correspondence courses.

EDUCATIONAL DELIVERY SYSTEM

o students who elect to participate receive support materials, including short assignments around which the discussions centre;
o participation is not mandatory and there are no examinations.

ENROLMENT

o ten grade five and six students in each conference call (2 per month);
o students may be physically handicapped, home-bound for medical reasons, long distances from school, on trap lines, or are enrolled due to religious reasons;
o most students complete the audioconference programme.

ADMINISTRATION

o two in-house correspondence school teachers have absorbed the teleconference activity into their ongoing duties, including call-scheduling, print material design and operation of the sessions.

SOFTWARE DEVELOPMENT

o materials design, programme organization and choice of topics is the responsibility of the two teachers, with limited input from a supervisor;
o sessions consist of live discussions stimulated by the materials, and assignments that are mailed to the participants.

TRAINING

o teachers read material on techniques of teleconferencing and learn from experience.

FINANCING

o the umbrella budget is $3,500 over a seven-month period, including $1,500 for rental of conferencing facilities for 14 sessions and $2,000 for staff and material costs.

THE FUTURE

o continue and improve programme to suit the needs of the clientele.

SERVICES

o none

CONTACT

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Sponsoring Organization: **ALBERTA HOSPITAL ASSOCIATION**
EDUCATIONAL SERVICES DEPARTMENT, ALBERTA

EDUCATIONAL MISSION

The Alberta Hospital Association (AHA) comprises 254 institutions, including hospitals, auxiliary hospitals and nursing homes in Alberta and the Northern Territories. In 1984, a teleconferencing system was installed that allows the Association to provide a cost-effective method of educational programmes for hospital personnel throughout the province, while also allowing timely communication for Association business.

COMMUNICATION TECHNOLOGIES

- o the total bridging capacity of the system is 93 ports, provided by a combination of the AHA-owned bridges and bridges installed by the telephone company directly into rural telephone exchanges;
- o transmission is provided by the telephone company using a mix of dedicated and dial-up links;
- o a small studio, which includes recording equipment, and bridge, plus two conference rooms linked to the bridge represent the facilities at AHA;
- o participating hospitals are responsible for their own conferencing equipment (most also participate in sessions originating from other sources, and the local interconnection points are designed to be flexible to accommodate different networks);
- o network operation and control is at the AHA (maintenance is contracted out or handled by the government telephone service).

PROGRAMME OFFERINGS

- o the strongest reason for establishing the network was the need to have rapid, interactive communications with Association members to facilitate administrative methods, such as negotiations of collective agreements, the AHA committee meetings and regular policy and programme updates;
- o staff development programmes represent the major network use (much of the 400 hours of annual programming is directed toward middle management and nursing personnel or has an interdisciplinary focus; programmes range from on-the-job training for housekeeping and laundry workers, to a series of interests to trustees and executive officers);
- o most programmes are one hour in length and grouped in a series of from four to six units;
- o continuing education for physicians is not available since the two university faculties of medicine in the province provide this service (some of the interdisciplinary programmes, however, include sections that are of interest to physicians);
- o the network is rented for the teaching of credit courses to the University of Alberta and Grant McEwen College, and to several other educational groups, for use in health-care courses.

EDUCATIONAL DELIVERY SYSTEM

- o each participating hospital provides a part-time site fascilitator who is responsible for arranging for equipment and facilities, making schedules and contacting the AHA;
- o hand-outs, slides or video-tapes support almost all the sessions (for example, a series of videotapes on medical-legal-ethical issues produced by ACCESS was previewed locally and discussed through audioconferencing).

ENROLMENT

- o 400 hours of programming is offered each year and it provides more than 80,000 participant hours of instruction (an average of 22 hospitals participate with from 5 to 20 attending per hospital);
- o programmes are offered for all hospital staff, including support staff, managerial and nursing fields;
- o the hospital registers on behalf of its staff and fees are paid by the institution.

ADMINISTRATION

- o the service is operated by the Educational Services Department, (it is staffed with one director, who has other ongoing duties, one full-time educational consultant, a programme assistant, a secretary and a part-time bridge operator);
- o the office handles preparation and mailing of support materials, scheduling and faculty/lecturer co-ordination.

SOFTWARE DEVELOPMENT

- o session content and orientation are planned jointly with the member institutions and the teaching faculty through personal meetings, ad hoc planning committees, formal surveys, and evaluation results;
- o course development is the responsibility of the educational consultant in collaboration with teaching faculty;
- o with the diversified background and level of the participants, particular attention is paid to ensuring that the course content reflects the learners' needs.

TRAINING

- o trial teleconferences and written materials are key training tools for presenters (individual coaching in the use of the medium is available and encouraged);
- o a slide presentation is available for training of site facilitators;
- o annual site facilitator meetings are held to exchange comments and ideas.

FINANCING

- o capital costs for the bridges were in the order of $180,000;
- o telecommunication charges come to $120,000 per 2 years. The combination of automatic bridges and foreign exchange lines have greatly reduced long-distance charges;
- o system maintenance comes to $11,000 yearly and personnel costs are $111,000.

THE FUTURE

- o to investigate videoconferencing for the long term.

SERVICES

- o rental of bridge facilities.

CONTACT

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Sponsoring Organization: **ATHABASCA UNIVERSITY, ALBERTA**

EDUCATIONAL MISSION

- o established as an undergraduate degree-granting institution in 1970 to remove barriers that traditionally restrict access to and success in university-level studies and to increase equality of educational opportunities for all adult Canadians, regardless of their geographic location and prior academic credentials;
- o established as an institution which has no on-campus students. Primarily provides home-based learning opportunities for individual study supplemented by a variety of group interaction techniques. Audioconferencing is used to hold seminars and group discussions that support the dispersed learners.

COMMUNICATION TECHNOLOGIES

- o course packages are primarily print-based, supplemented by radio and television programmes, audiotapes, seminars, workshops, teleconferencing and some computer networking;
- o one-to-one telephone tutorials as well as audioconferencing sessions are an integral part of the packages. Students use toll-free numbers to contact tutors or participate every two weeks, at 31 sites (fall 1985), in group tutorials of about 2-1/2 hours;
- o an audioconferencing bridge with ports at the university links the teleconferencing sites. Over 20 convenor sets are sent to local conferencing sites, as required;
- o outside business hours, the university uses the reduced-rate Alberta Government's telephone service;
- o radio and television programmes are purchased, developed co-operatively or on contract. No internal production facilities are available;
- o radio and television programmes are broadcast by ACCESS Alberta, free of charge
- o three courses in computer sciences link four computer laboratories across the province to the university's mainframe or allow the students access from their own microcomputer, provided it has a printer;
- o operation and maintenance of the university's equipment is handled by in-house staff, with some supporting contract work.

PROGRAMME OFFERINGS

- o more than 128 courses in four major fields of study, ranging from general interest to those focusing specifically on a career;
- o virtually all courses are candidates for audioconferencing support. In the fall/winter of 1985/86, philosophy, economics, sociology, history, computing, administration, women's studies, accounting and psychology offered teleconferencing;
- o three computer-science courses were offered in the fall 1985 session;
- o radio and television programming is part of the following courses: biology, French (3 courses), geography, geology and psychology.

EDUCATIONAL DELIVERY SYSTEM

- o all students participating in a teleconference-based course must register at one of the 41 university teleconferencing centres located throughout the province;
- o students have the same access as other students to the university's counselling and support services. They receive the same learning materials. This also applies to TV-supported courses, with the additional provision of videotapes for students who do not receive the ACCESS TV channel;
- o unlike home-study students, those in teleconferencing courses must adhere to strict registration deadlines and write their examinations at specified times at the teleconferencing locations;
- o home-study and teleconference students are assigned a telephone tutor to whom they have toll-free access to resolve learning or procedural issues;
- o entrance requirements, flexible registration dates and study schedules are in effect.

ENROLMENT

- o 8,600 students registered in 1984-85;
- o 258 students participated in audioteleconferencing courses and 344 in computer-science courses from September to December, 1985;
- o the majority of students are adults who pursue full-time work. Most have completed high school and many have some university experience.

ADMINISTRATION

- o total staff of 271 in the divisions of Learning Services and of University Services;
- o two professional staff and one support staff position are assigned part-time to co-ordinating the teleconferencing delivery system;
- o part-time teleconferencing tutors are hired by the academic divisions and supervised by internal academic staff;
- o an audio technician operates the teleconferencing hardware at the university and local liaison persons handle the equipment at the participating sites.

SOFTWARE DEVELOPMENT

- o courses are developed by course teams, consisting of a subject-matter expert (in-house or contract), an instructional designer, an editor and a visual designer. All courses are developed for the university's primary clientele, the home-study student;
- o the estimated student demand for a given course determines the format of the course package;
- o TV-based courses are purchased and radio series are developed in conjunction with Access Alberta.

TRAINING

- o training packages for course developers and teleconference tutors have been developed;
- o a student handbook is part of the orientation materials.

FINANCING

- o the annual operating budget (1985/86) is about $16 million;
- o the teleconferencing budget in 1985/86 is $80,000, with more than half for salaries and less than a fourth for communication;
- o access to TV and radio distribution is free-of charge;
- o 88 per cent of the revenue comes primarily from the provincial government, the remainder from student fees.

THE FUTURE

- o continued exploration of teleconferencing and computer-based learning as economical to permit learning for small numbers of students in a large number of scattered locations.

SERVICES

- o site visits welcome;
- o library loan and sale of course packages;
- o sale of training packages and provision of training.

CONTACT

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Sponsoring Organization: **LAKELAND COLLEGE, LITERACY EDUCATION AND READING NETWORK (LEARN) ALBERTA**

EDUCATIONAL MISSION

o to support professional development for volunteer tutors in 7 centres in northeastern Alberta.

COMMUNICATION TECHNOLOGIES

o provides access to an existing 10-port audioconferencing bridge that provides various provincial institutions with a network of support for university and college level progammes;
o bridges 6 remote sites to the college with 5 microphones and loudspeakers per site.

PROGRAMME OFFERING

o a series of nine 2-hour training seminars for community volunteers to support them in content and techniques of adult learning and literacy, and English as a second language.

EDUCATIONAL DELIVERY SYSTEM

o local teaching assistants support the remote instructor by showing films and distributing materials;
o registration for the non-credit programme is by phone (no examinations are given).

ENROLMENT

o a total of 150 community volunteers participate in the programme with 25 to 35 volunteers per session.

ADMINISTRATION

o LEARN is a college-wide programme staffed by 8 part-time people. The teleconference training seminar is only one of a number of activities carried out by these and the local teaching assistants.

SOFTWARE DEVELOPMENT

o is the responsibility of the seminar leader who receives a handbook and works with the LEARN co-ordinator.

TRAINING

o the LEARN co-ordinator provides training to the seminar leaders and teaching assistants.

FINANCING

o no direct costs incurred, as salaries are part of the LEARN programme and equipment and leased lines are in place.

THE FUTURE

o to expand the use of audioconferencing as a volunteer training tool, and to make better use of existing facilities.

SERVICES

o welcomes site visits and information requests.

CONTACT

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Sponsoring Organization: **LETHBRIDGE COMMUNITY COLLEGE**
CONTINUING EDUCATION DIVISION, ALBERTA

EDUCATIONAL MISSION

- a post-secondary institution with a major thrust to making its courses available province-wide through correspondence instruction and audioconferencing support

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COMMUNICATION TECHNOLOGIES

- use of the Alberta Teleconferencing Network with local educational consortia providing the learning sites (uses a mix of automatic and manual bridges);
- the college established an audioconferencing room with basic equipment to originate instruction;
- print materials are provided as back-up to audioconferencing.

PROGRAMME OFFERINGS

- Early Childhood Education;
- one course each in the fall and winter semesters.

EDUCATIONAL DELIVERY SYSTEM

- the regional educational consortia provide support services to the programme including registration, conference arrangements and dissemination of materials;
- interaction between learner-instructor occurs during the seminar-format audioconferences;
- students receive print materials as study back-up.

ENROLMENT

- day-care staff constitute the primary learners.

ADMINISTRATION

- one full-time co-ordinator within the continuing education division develops and administers the course;
- instructors are brought in from the academic faculties;
- co-ordination with the Alberta Teleconferencing Network is accomplished through participation in a provincial committee;
- local activities are carried out by the regional educational consortia.

SOFTWARE DEVELOPMENT

- o the Early Childhood programme coordinator works with the academic faculties, and independent consultants in the development and delivery of the course;
- o print materials are adapted from existing on-campus programmes.

TRAINING

- o responsibility of the programme co-ordinator consists of introducing instructors to teleconferencing techniques;
- o at the local level, educational consortia staff introduce learners to teleconferencing techniques and equipment.

FINANCING

- o the course is financed through regular allocations to the college.

THE FUTURE

- o expand the college's regional teleconferencing network with two five-port bridges to increase services to rural communities.

SERVICES

- o training of teleconference instructors in delivery techniques and equipment operation.

CONTACT

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Sponsoring Organization: **MOUNT ROYAL COLLEGE**
CREDIT EXTENSION AND PART-TIME STUDIES
ALBERTA

EDUCATIONAL MISSION

- o to provide education and training of a consistently high quality to adults through academic programmes and activities that are responsive to the current and evolving community needs of Calgary and the region;
- o to offer a province-wide certificate programme in Mental Health Nursing.

COMMUNICATION TECHNOLOGIES

- o shares use of the province-wide Alberta Teleconferencing Network with participating sites established across the province;
- o owns two sets of audioconferencing convenors located in the media centre and accommodates up to 20 students;
- o two learning centres have been established in Edmonton and Red Deer in cooperation with local colleges, allowing students access to computer managed learning (CML) software, linking the micro terminals to the college's mainframe computer;
- o students at 12 other sites receive print materials because CML facilities are not available.

PROGRAMME OFFERINGS

- o certificate in Post-Basic Mental Health Nursing, developed cooperatively with several colleges and universities and supported by professional associations;
- o other courses and programmes in several other academic areas are under development/consideration.

EDUCATIONAL DELIVERY SYSTEM

- o students register as part-time or full-time equivalent students, through the Credit Extension Division;
- o print-based home-study workshops, audioconferences and practicum placements are combined to assist the students;
- o two learning centres are equipped so that students can interact on-line with the computer managed component of the programme. Where access to these centres is not available, students are provided with print copies of the materials;
- o audioconferences are held every three weeks to establish peer contact; students attend these at designated sites;
- o instructor contact is by phone, mail, and on-campus workshops;
- o examinations are held on campus and at designated locations throughout the province;
- o students have access to instructional assistance at each learning centre.

ENROLMENT

- o fifty students on a part-time or full-time equivalent basis;
- o students are registered working nurses largely between thirty and thirty-five years old;
- o full-time equivalent students complete the programme in one academic year, part-time learners in two to three academic years.

ADMINISTRATION

- o the programme is administered through the Credit Extension Division as part of the overall activities of a staff of two;
- o the programme is developed and delivered through the Allied Health Department by a team of two full-time staff, two full-time faculty and one sessional faculty.

SOFTWARE DEVELOPMENT

- o the home-study course is based on an existing on-campus course which was redeveloped to incorporate the learning-support needs of the distance students;
- o the computer-managed aspects of the programme were redesigned to support the distance education methodology.

TRAINING

- o extensive training of in-house staff for the CML component by the software provider. Students are trained through the programme staff.

FINANCING

- o the programme is financed by an operational and capital grant from the Provincial Department of Advanced Education.

THE FUTURE

- o expansion of the CML aspects of the programme through learning centres shared with other programmes and institutions;
- o establish credit transfer procedures for certificate programme graduates to baccalaureate programmes in nursing.

SERVICES

- o consulting in course design and implementation;
- o site visits.

CONTACT

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Sponsoring Organization: **NORTHERN ALBERTA INSTITUTE OF TECHNOLOGY (NAIT), CONTINUING EDUCATION DIVISION, ALBERTA**

EDUCATIONAL MISSION

- o to provide business and industrial skills-training for Albertans who live where post-secondary education is not available; or for those who cannot attend traditional educational institutions.

COMMUNICATION TECHNOLOGIES

- o TV co-production and distribution with ACCESS Alberta (the provincial educational communication network);
- o audioconferencing facilities are leased from the phone company;
- o one studio is equipped with basic audioconferencing equipment for course lecturers;
- o microcomputers at 5 Learning Centres and at 12 industrial and plant sites, equipped with modems, allow for communication with a mainframe computer at NAIT.

PROGRAMME OFFERINGS

- o the Institute offers 700 continuing education courses annually, four of these are supported by communication networks mentioned above;
- o a TV-supported 16-week credit course in small business management;
- o two computer managed courses (supported by correspondence) in the area of power engineering;
- o a teleconferencing tutorial support class for a master electrician course.

EDUCATIONAL DELIVERY SYSTEM

- o tutors are available to students at the learning centres for up to four hours a week (industrial and plant sites make their own arrangements for tutorial support);
- o the credit courses offered by the distance education system are accompanied by self study-correspondence packages. The power engineering course has continuous registration; the others are tied to the academic schedule;
- o admission and registration requirements for distance education students are the same as for on-campus students.

ENROLMENT

- o varies among the four courses with 200 registrants in each of the two power engineering courses, 45 in small business management, and 25 in the master electrician course.

ADMINISTRATION

o the Continuing Education Division has a staff of 20 whose ongoing duties include the administration and planning of the courses as well as support activities for the TV, and the computer programme.

SOFTWARE DEVELOPMENT

o courses developed for delivery through continuing education are mostly adaptations of existing on-campus courses and follow the established software development procedures. In-house faculty and contract staff develop the courses. Attention is paid to the fact that the learning process is based on self-study.

TRAINING

o tutorials based on audioconferencing or telephone support are considered an extension of classroom activities. Special training sessions are available upon request;
o the preparation of the TV course is supported by students in the TV arts programme and is thus a training vehicle.

FINANCING

o NAIT has an annual budget of $72 million. The budget of the Continuing Education Division is $3.6 million. The TV course costs approximately $100,000; the computer course about $500,000 over three years. It was developed jointly with other institutions who shared the costs.

THE FUTURE

o production of a first-year TV-based credit in business management, as a major on-going student project.

SERVICES

o sale of the power engineering course.

CONTACT

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Sponsoring Organization: **SOUTHERN ALBERTA INSTITUTE OF TECHNOLOGY**
DIVISION OF CONTINUING EDUCATION, ALBERTA

EDUCATIONAL MISSION

- o to provide relevant skill-oriented education;
- o to provide credit and noncredit programmes for adult part-time rural Albertans by utilizing a variety of alternative delivery systems.

COMMUNICATION TECHNOLOGIES

- o an internal 20-port audioconferencing bridge and other provincial minibridges linking approximately 90 learning centres situated throughout the province;
- o learning centres are equipped with conference convenors and press-to-talk microphones;
- o two studios next to the telecommunications booth for instructional delivery of courses; three campus classrooms equipped with audioconferencing equipment for campus student participation in courses;
- o twelve computer-managed learning centres throughout the province accessing the mainframe of the Institute from local micro units;
- o correspondence print-based courses supported by audio teleconferenced tutorials;
- o videotex (Telidon) units in rural teleconference learning centres to provide visual (graphic and photographic) enhancement to live audio delivery of courses. Utilization of page creation system to prepare on-site visuals.

PROGRAMME OFFERINGS

- o first and second-year courses as part of the two-year diploma programmes in the faculties of: Medical Sciences; Library Arts; Business Education; Electrical, Automotives; Hotel Administration;
- o Power Engineering, and Computer Technology. Courses are from 24 to 60 credit hours per term, with programme offerings scheduled twice a year;
- o noncredit, general interest courses (usually 20 hours) in: foundation of art, time management, and efficient reading;
- o institute programme counselling for parents, teachers, and students in high-schools throughout the province;
- o complete Emergency Medical Technician Ambulance (EMTA) programme on computer-managed learning (CML) and continuing education CML refresher programmes to update graduates;
- o photography telecourse delivery over ACCESS network;
- o teleconference tutorials support of power engineering courses.

EDUCATIONAL DELIVERY SYSTEM

- o learning centres for teleconference or CML courses are arranged through local school boards, Further Education Councils, Consortia, co-operating Community Colleges, Provincial Vocational Centres, rural libraries, hospitals and firehalls;
- o admission and registration requirements for distance education students are the same as for on-campus students;

- o students register with the Institute by mail or phone;
- o print materials, study guides, and texts are mailed directly to the student;
- o local teleconference aides in each learning centre assist with course delivery by setting up equipment, handing out tests and assignments, operating AV equipment and support visuals, troubleshooting technical problems, and providing student counselling and on-site support;
- o CML courses are supported with telephone tutorial sessions and on-site instructor delivery of practical application sessions;
- o examination invigilation provided by host institute or local teleconference aides. Final examinations are the same as those given to campus students.

ENROLMENT

- o approximately 1500 students register annually in the credit teleconference courses; 600 register in the CML EMTA programme and 200 register in the refresher programme;
- o course completion rate for registered teleconference students for the past five years has been 90%;
- o final mark performance has been higher than average compared to on-campus students;
- o motivation for completion and success may be highly due to the limited access to programmes of this nature and the relevance of the subject matter to work situations.

ADMINISTRATION

- o the Continuing Education Department's Outreach Division is responsible for administration of the delivery of the courses;
- o the academic faculties are responsible for content development, support print, instructional delivery and student evaluation;
- o the Medical Science Department is responsible for the delivery of the EMTA programme;
- o the Educational Media Services Department is responsible for the maintenance and technical assistance required for audio teleconferencing.

SOFTWARE DEVELOPMENT

- o courses delivered through audio teleconferencing are adaptations of existing on-campus courses.

TRAINING

- o annual seminars to acquaint instructors with effective teleconferencing delivery techniques, programme planning and organization of materials, effective instructional techniques, problem solving, methods to encourage student participation and interaction, and effective utilization of visuals;
- o annual workshops for local teleconference aides to address registration procedures, technical responsibilities, handling of course materials and examinations, review class procedures, course content and counselling tips.

FINANCING

- o income is derived from the provincial government and student fees;
- o audio teleconferencing, Telidon enhancement, continuing education correspondence courses and their tutorial support are financed through a portion of the Continuing Education Division's operating budget. Capital costs are around $90,000 and the annual operating budget is $200,000.

THE FUTURE

- o expand upon the visual enhancement of audio teleconferencing;
- o establish a two-way computer capability in learning centres;
- o develop additional courses in existing programme areas.

SERVICES

- o advice to other institutions; advertising brochures.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF ALBERTA**
CONTINUING MEDICAL EDUCATION

EDUCATIONAL MISSION

o to provide continuing medical education for physicians in rural hospitals in Northern Alberta.

COMMUNICATION TECHNOLOGIES

o audioconferencing facilities at the Continuing Medical Education building;
o 23 participating hospitals provide their own facilities and equipment. The transmission system is leased on an on-demand basis from the carrier. Conference bridging facilities are leased.

PROGRAMME OFFERINGS

o two one-hour sessions are offered each month. These sessions are each repeated once in order to keep the number of participants reasonable, to offer flexible schedules, allowing more people to participate;
o the sessions cover mostly individual topics of interest.

EDUCATIONAL DELIVERY SYSTEM

o A part-time facilitator is appointed for each participating site to coordinate and organize matters locally and to provide input/feedback for course planning;

ENROLMENT

o In 1984/85, 549 physicians registered to participate in the sessions with an average of 21 participants per session.

ADMINISTRATION

o the staff of the Division of Continuing Medical Education organize and plan the sessions as part of their ongoing duties;
o speakers are primarily faculty members from the University of Alberta.

SOFTWARE DEVELOPMENT

o faculty present their materials live, with hand-outs and slides sent in advance.

TRAINING

o short introduction of the presenter to the equipment plus an introductory videotape.

FINANCING

o each participating hospital pays a $35 conference fee;
o the hospitals are reimbursed by the Continuing Education faculty for long-distance charges which add to approximately $2,000 per year;
o the speakers are paid a small honorarium.

THE FUTURE

o continuation and extension of service.

SERVICES

o none offered externally.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF ALBERTA, INSTRUCTIONAL SYSTEMS GROUP, ALBERTA**

EDUCATIONAL MISSION

The Instructional Systems Group (ISG) of the University of Alberta works with a variety of commercial, governmental and academic client groups to:

- o provide qualified credit or continuing instruction for adults in remote areas of the province and in some major centres;
- o support instruction in a variety of specialized professional areas;
- o provide training for commercial clients.

COMMUNICATION TECHNOLOGIES

- o the Programmed Learning for Automated Teaching Operation (PLATO) is the main instructional tool. It is supported by textbooks, reference materials, audio or videotapes;
- o students can access PLATO through CDC terminals, IBM or Apple microcomputers. The central system is equipped with 260 ports. Off-the-shelf devices facilitate the communication link;
- o students can access PLATO at established computer learning centres or by using the telephone from their homes.

PROGRAMME OFFERING

- o at present, only non-credit programmes are available;
- o in general educational, as well as in young people's and summer programmes, a large variety of courses exist;
- o in professional education, pharmacology (with 70 courses) and nursing are most developed;
- o more than 100 courses for professional upgrading of adults are available;
- o commercial and company private in-house training represented with over 50 courses.

EDUCATIONAL DELIVERY SYSTEM

- o courses available via PLATO are designed for remote learning, that is without a resource person;
- o access to instruction is available any time the learner chooses through the learning centre or through use of own computer;
- o registration for off-campus clients is handled by the client organization itself;
- o examination can be part of the software;
- o on-line support and student counselling is available eight hours a day;
- o off-campus clients set up their own operational staff to support the learners;
- o the nursing programme uses site instruction for clinical skills and handles counselling on-site as well. Pharmacology will provide consulting through electronical messaging.

ENROLMENT

- o PLATO service to all internal and external clients is provided by 15 staff members;
- o PLATO services to adults off-campus is provided by two to four staff members.

ADMINISTRATION

- o the computing centre staff supports faculty use of the service;
- o these same individuals serve off-campus clients, develop software, assist them in setting up their own staffing and operational plans.

SOFTWARE DEVELOPMENT

- o instructional production model with check-steps for quality control;
- o content matter specialists (often from a client institution), instructional designer, programmer and graphic artist develop the programme;
- o other support materials, (eg. videotapes) are developed by ISG and the client-organization;
- o programming developed by other institutions undergoes intensive review.

TRAINING

- o each programme has user-training components built into the software.

FINANCING

- o annual operating budget for 1986/87 is forecast at $775,000, to be covered by external clients. Capital costs provided by the university.

THE FUTURE

- o assess feasibility of course delivery by combined satellite/landlines;
- o study the feasibility of course delivery by linking microcomputers into local area networks.

SERVICES

- o consulting, training, course delivery and development, distance delivery, site visits.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF CALGARY, FACULTY OF CONTINUING EDUCATION, ALBERTA**

EDUCATIONAL MISSION

o to reach out to continuing-education students throughout the province who are not able to attend classes on campus.

COMMUNICATION TECHNOLOGIES

Previous efforts to offer courses in rural centres included instructor travel, newspaper-based delivery of course materials, radio and television broadcasts. In 1980 an audioconference-based distance education network was established featuring:

o a 20-port audioconferencing bridge and two 5-port minibridges are linked by a combination of watts lines, foreign exchange lines and local exchanges, representing a mix of dedicated and dial-up services. The service is provided by the provincial carrier and the Government telephone company;
o 60 sites at community libraries or local schools are equipped with audioconferencing facilities including one loudspeaker and four microphones. These sites form part of the Alberta Teleconference Network, a multi-user, multi-service setup, jointly sponsored by a number of institutions. In addition, a medical network, serving 45 hospitals has been implemented to meet the continuing medical education needs of doctors and nurses as well as to facilitate diagnostic and treatment consultations. The instructors use headset microphones;
o cassette decks can be patched into the audio mixers to feed into the studio or to record a session;
o automatic or manual switching for single channel use of voice and data is available;
o end-user equipment maintenance checks and repairs are conducted over the summer. The carrier is responsible for the transmission system;
o a Telidon field trial was conducted and Telidon software is available for three courses;
o the Faculty of Physical Education is developing computer and laser disc programmes to be offered on campus and through the Continuing Education Division.

PROGRAMME OFFERINGS

o credit and non-credit programmes. The faculties of Education, Social Welfare, Medicine and Nursing use the network on an ongoing basis
o the Faculty of Education offers graduate and undergraduate courses in Policy and Administration, Curriculum and Instruction, Psychology and Teacher In-service Training;
o Social Welfare offers the full range of their undergraduate courses, with the exception of the practicum course;
o the Faculty of Medicine supports the third-year clerkship programme to reach students in hospitals as well as continuing medical education seminars;
o a pilot project to deliver Post Registered Nursing Baccalaureate Degree is implemented;

- o Non-credit programmes have included courses for seniors, the disabled, and local government administrators;
- o an eight-week course on microcomputers in Physical Education in under-development.

EDUCATIONAL DELIVERY SYSTEM

- o courses are the responsibility of the professor and corresponding faculty;
- o the Distance Education Unit (D.E.) is responsible for registration. Admission requirements are the same as for on-campus courses;
- o local teleconference assistants supervise proceedings at each site, provide liaison to the D.E. Unit, hand out materials, show films or slides as required, collect fees and supervise exams on behalf of the instructor;
- o books, print materials and other learning support materials are basically the same as for on-campus classes;
- o course materials are selected and prepared by the sponsoring faculty and marked by the D.E. Unit.

ENROLMENT

- o in 1984/85, 16 audioconference courses with 871 registrants were conducted and achieved a completion rate of 98%;
- o projections for 1985/86 call for double the number of courses and an increase of registration by 110%;
- o the majority of registrants are full-time workers, who wish to advance their careers with credit courses.

ADMINISTRATION

- o the D.E. Unit is part of the Faculty of Continuing Education;
- o full-time staff, made up of two administrators, two conference operators and a secretary, operate the service;
- o the D.E. Unit is responsible for programming, technological innovation, co-ordination with receiving sites and faculty and for day-to-day operation of the service. The sponsoring faculty is responsible for content and academic supervision. For example, the Faculty of Physical Education employs a total of 9 staff members ranging from computer/instructional design specialists to computer artists in its computer support group. The development of a continuing education course is but one of the group's many tasks.

SOFTWARE DEVELOPMENT

- o entirely the responsibility of the professor and sponsoring department and follows the same principles as used for on-campus instruction.

TRAINING

- o full- and half-day seminars for faculty are offered;
- o special help is available as requested;
- o local teleconference assistants receive an on-site orientation, a teleconference orientation, and a procedures manual;
- o students receive orientation from local teleconference assistants and the instructor during the first class.

FINANCING

- o capital and operating costs are borne by the Faculty of Continuing Education. The cost of implementing audio teleconferencing at the University of Calgary was approximately $150,000, including the lease of the bridge, 44 conveners, renovations and wiring, studios, switching and recording equipment;
- o the required enhancements to carry out the Telidon trial cost $80,000 excluding development and implementation;
- o the long-distance charges reflect special rates and, in particular, cost reductions are achieved through foreign exchange lines which are available through the Alberta Teleconferencing Network. Use of these lines are provided as a service to the University. Long-distance charges and local site costs are shared by other users.

THE FUTURE

- o enhancement of the network through microcomputer-sized telewriting system which can transmit both voice and data simultaneously on a narrow band carrier (i.e. telephone line);
- o teaching support through computer-assisted and computer-managed learning, computer messaging and graphics;
- o simultaneous carriage of voice and data (using a single voice channel);
- o implementation of a long-term study of participant needs, reactions, and demographics.

SERVICES

- o teleconference training workshops;
- o hardware planning, specification and implementation support;
- o reproduction and distribution of course materials;
- o a full-range of services is available in computer-assisted learning through the Canadian Centre for Learning Systems.

CONTACT

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Sponsoring Organization: **SASKATCHEWAN EDUCATION CORRESPONDENCE SCHOOL, SASKATCHEWAN**

EDUCATIONAL MISSION

- o to supplement conventional high-school education for students and adults so as to offer a more complete range of educational opportunities.

COMMUNICATION TECHNOLOGIES

- o offers a toll-free in-watts telephone system for provincial residents who require tutorial assistance;
- o augments its primarily print-based instructional modules with kits, video cassettes, and audio cassettes for English and modern language courses and other courses such as computer literacy and typewriting;
- o is in the process of tendering for development of a software package which will provide computer managed instruction (CMI) for marking student assignments and for targeting in-depth tutorial support; student answers will be entered manually and processed by a mainframe computer. Hard-copy feedback to responses will be printed out.

PROGRAMME OFFERINGS

- o over 68 credit courses at grades 9 to 12, with flexible completion time, continuous program entry and two annual examination dates;
- o most subjects may be able to benefit from the planned computer-managed instruction over the next four years.

EDUCATIONAL DELIVERY SYSTEM

- o school-age correspondence school students are enrolled under local school supervision, but register, take their examinations and obtain counselling and support from the central office by phone, mail or in person;
- o adults have the option to obtain counselling through a local community college.

ENROLMENT

- o of the over 7,000 correspondence students enrolled in 1984/85, 40% were adults.

ADMINISTRATION

- o the telephone tutorial service is handled by the correspondance school's staff of 2 managers, 23 teaching staff and 7 support staff.

SOFTWARE DEVELOPMENT

o in addition to its regular materials development approach, a team for the CMI development was set up, including a manager, 2 teachers and a computer specialist. At least two CMI courses will be piloted before the teachers will take over the development of new data bank.

TRAINING

o training for the Correspondence School staff is an ongoing process to prepare the introduction of CMI support. Assistance in trouble-shooting during start-up will be essential.

FINANCING

o the annual budget is $1.3 million, of which 3.5% goes to telecommunications costs and computer support.

THE FUTURE

o exploration of videotex as a delivery method for certain materials for correspondence students.

SERVICES

o site visits.

CONTACT

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Sponsoring Organization: **SASKATCHEWAN INDIAN FEDERATED COLLEGE, SASKATCHEWAN**

EDUCATIONAL MISSION

o to deliver university-level professional development programmes to staff of Indian Organizations and Administrations who cannot attend the traditional campus-based programmes.

COMMUNICATION TECHNOLOGIES

o audioconferencing system linking the college with 4 sites in rural Saskatchewan;
o originating and network control site is at the college, which also accommodates 20 participants on site;
o permanent off-campus learning sites are located in administration buildings or educational facilities, each equipped with a loudspeaker and a number of microphones;
o neither the network nor the facilities are shared with other users;
o audioconferences are booked through the telephone company as required.

PROGRAMME OFFERINGS

o Certificate in Administration programme for Indian administrators.

EDUCATIONAL DELIVERY SYSTEM

o tele-education is the main educational delivery mechanism;
o on-site presence of the programme staff was established through visits and selection and training of community level co-ordinators;
o print materials and study guides are available;
o tutorial arrangements and counselling are accomplished through site visits;
o registration is handled through the established college procedures;
o examination will be at the four sites under local supervision;
o community co-ordinators assist the local student groups.

ENROLMENT

o in the first year of operation, 1984/85, 24 students participated in the programme at two initial sites;
o performance and completion information is not available yet.

ADMINISTRATION

- o one full-time co-ordinator at the college is responsible for overall course co-ordination;
- o instructors are also responsible for the established Administration Program at the University of Regina;
- o community co-ordinators are employed by the college;
- o print materials and guides are the same as those for on-campus courses;
- o minimal technical experience is required and can be handled in-house.

SOFTWARE DEVELOPMENT

- o the course delivered is an established on-campus course which has been adapted to tele-teaching;
- o preparatory sessions were developed to prepare the students for college-level training;
- o face-to-face on-campus students participate in the course and provide the instructor with additional feedback to the sessions.

TRAINING

- o orientation sessions for community co-ordinators and the community at large are held;
- o student orientation includes techniques of learning via teleconferencing and of independant study.

FINANCING

- o a $60,000 annual grant support for 3 years from a private foundation supports staff costs, equipment purchase and telecommunication costs;
- o additional resources are absorbed by the college and university.

THE FUTURE

- o expand the network to include additional community sites;
- o expand and upgrade the curriculum in Administration to continuously meet the Indian administrators' needs.

SERVICES

- o site visits;
- o limited assistance for planning and implementation.

CONTACT

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Sponsoring Organization: **SASKATCHEWAN TELEHEALTH CONSORTIUM, SASKATCHEWAN**

EDUCATIONAL MISSION

The Continuing Education offices of the University Colleges of Medicine, Nursing, Pharmacy, the University Hospital, the Society of Medical Laboratory Technologists and Saskatchewan Health are members of the Telehealth Consortium and provide continuing education to health professionals working throughout the province.

COMMUNICATION TECHNOLOGIES

- o employ audioconferencing facilities, using a 10 port bridge, teleconferencing convenor sets, microphones and loudspeakers;
- o the public telephone network provides the interconnecting transmission system;
- o each site has a conferencing room with permanently installed telephone equipment, provided by the participating hospitals or clinics. At the University Hospital, several rooms are equipped to connect to conferencing equipment. The number of simultaneously connected sites range from 4 to 10.

PROGRAMME OFFERINGS

- o 70 continuing-education teleconference programmes in 1984/85 for physicians, nurses, medical laboratory technologists and pharmacists, with the same number planned for the subsequent year;
- o an emergency-care series was developed for physicians and nurses;
- o the existing bridge is also used by other users on an occasional basis, e.g., for a graduate course in Educational Curriculum studies for meetings and by the community college for a personal development course.

EDUCATIONAL DELIVERY SYSTEM

- o print video and slide support materials;
- o each hospital or learning site has a site facilitator, appointed locally, who is the key liaison with the teleconferencing office;
- o participation in the presently ongoing continuing health education programmes is voluntary and no examination is required.

ENROLMENT

- o the number of participants for the continuing health-education sessions range from 25 to 113 per session;
- o participants are practising health-care professionals.

ADMINISTRATION

- o the telehealth consortium office is staffed by a full-time director and a part-time secretary;
- o site facilitators' duties within hospitals are absorbed as part of the ongoing institutional duties;
- o the Telehealth office acts as the network control centre, supervises the technical operation, acts as origination point and provides trouble-shooting service;
- o teleconference instructors and session moderators are selected from within their professional group.

SOFTWARE DEVELOPMENT

- o the Telehealth consortium through a combination of the professional organizations, university specialists and the project director develop course content, support materials, instructional delivery and local follow-up activities.

TRAINING

- o training of instructors, moderators and site facilitators is through briefing and orientations towards distance learning.

FINANCING

- o the Telehealth Consortium teleconferencing project was funded by a two-year foundation grant of about $125,000 and by separate start-up funds from the participating disciplines.

THE FUTURE

- o continued and increased use of audioconferencing services to support continuing professional education.

SERVICES

- o on-site consulting and training.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF REGINA, UNIVERSITY EXTENSION, SASKATCHEWAN**

EDUCATIONAL MISSION

- o to provide opportunities for University education through an extended classroom concept of teaching and learning, to students throughout Saskatchewan who cannot attend campus courses, or to areas where low enrolment does not warrant a locally mounted course.

TELECOMMUNICATION TECHNOLOGIES

- o regular classroom instruction is transmitted via the provincial fibre-optic network, and co-operating cable networks to five community-based classrooms. In addition, videotapes of the sessions are sent to students in other communities;
- o the one-way television transmission is supported by an audioconferencing network for questions and feedback;
- o the originating on-campus classroom has two remote cameras, a ceiling microphone, loudspeaker and telephone interface for audio-conferencing;
- o the community classrooms, located in highschools and college facilities can accommodate about 20 students each and are equipped with a TV monitor and telephone.

COURSE OFFERINGS

- o 4 university credit courses are offered on the network each semester with subject matters including business information systems, accounting, administration, organizational behavior, personnel administration, religious studies, economics, computer science, psychology and social work;
- o the programmes are offered during the regular University evening-session since they are offered similtaneously on-campus.

EDUCATIONAL DELIVERY SYSTEM

- o off-campus students receive the same texts and materials as on-campus students;
- o they participate live in the classroom sessions. They see the instructor "live" on television and may enter into dialogue and questions via the telephone;
- o community colleges provide contact and referral at the local level;
- o students are enroled through the regular University enrolment procedures using telephone registration;
- o examination is arranged through proctors in the community.

ENROLMENT

- o students who want to earn a full degree or a certificate;
- o enrolments vary by course or site; the social work class had 100 students in a 1985 session, administration had 77;
- o each class has on- and off-campus students, usually over half are at the remote sites.

ADMINISTRATION

- o co-ordinated within the University Extension part-time credit programme, which has a staff of 4;
- o academic faculties, audio-visual services, library and bookstore support the project through existing resources with some financial support for additional tasks, as required.

SOFTWARE DEVELOPMENT

- o the instructional approach is that of an extended classroom concept where instructors work with on- and off-campus students simultaneously;
- o the distant student has access to the faculty through the audio network and can arrange for special tutorials with the instructor.

TRAINING

- o instructors receive a brief orientation to familiarize them with the equipment and with distance teaching techniques.

FINANCING

- o in addition to the regular resources provided by different university divisions, a capital expense of $40,000 was in current budget. Annual operating costs are $133,000, with $83,000 for telephone services, $28,000 for instruction, $10,000 for technical support and $12,000 for evaluation;
- o project funds come from the university budget, student fees, and an evaluation grant from the federal government.

THE FUTURE

- o expand the number of sites, with improved audio quality;
- o introduce on-line computer network to complement classes;
- o intensify instructor training and student support services.

SERVICES

- o limited planning and implementation assistance;
- o site visits.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF SASKATCHEWAN, DIVISION OF EXTENSION AND COMMUNITY RELATIONS**

EDUCATIONAL MISSION

o to provide increased access to university degree study programs and to continuing education opportunities for residents throughout Saskatchewan.

COMMUNICATION TECHNOLOGIES

o telephone interaction between individual students and instructors to augment the primarily print-based courses, some of which have audio and video tape components;
o experimental, trial and occasional projects using satellite-based video distribution to existing TVROs at 6 to 12 receiving sites, with terrestrial interconnection for audioconferencing;
o community colleges largely serve as reception sites;
o audioconferencing convenors and bridging capacity are leased from the carrier;
o production facilities for radio and video available on campus.

PROGRAMME OFFERINGS

o in 1986-87, 36 undergraduate degree credit courses in Art and Science and Education, all using telephone support;
o a microbiology course will distribute its video component by satellite to community learning groups;
o a day-long videoconference for professional engineers at 12 conference sites will provide professional education for this group.

EDUCATIONAL DELIVERY SYSTEM

o admission and registration through the normal university procedures;
o home study print packages or face-to-face meetings are available for distant learners to enable them to complete the majority of courses through home study;
o special satellite-based seminars use group viewing sites which employ local facilitators to encourage local participation and provide the link with the University;
o courses coincide with the academic schedule.

ENROLMENT

o ranges from 10 to 40 per course;
o projections for the engineering professional seminar call for 100 to 200 participants.

ADMINISTRATION

- o a staff of six in the Division of Extension operates the part-time degree courses, a small portion of their efforts is allocated towards planning the satellite-based activities;
- o the Division of Audiovisual Services undertakes video and audio production and organizes the satellite distribution network.

SOFTWARE DEVELOPMENT

- o degree credit courses are developed from on-campus courses by an instructional designer and the instructor; video-support programmes are produced on their recommendation;
- o the non-credit professional engineering programmes are newly developed for satellite distribution. They use a live day-long seminar format, with participants in front of different speakers providing face-to-face feedback.

TRAINING

- o informal orientation programs for instructors.

FINANCING

- o communications costs represent only a minor part of the Extension Division's budget;
- o students are allowed collect calls to keep in regular contact with their course instructor;
- o costs for the satellite distribution and reception system are shared by consortium members. It is too early to give figures;
- o the engineering program expects to meet the projected expenses through contributions from the federal government, registration, corporate sponsors and special project funds.

THE FUTURE

- o increased use of audioconferencing services for degree credit studies;
- o increasing use of satellite-based videoconferencing through the consortium.

SERVICES

- o none to date.

CONTACT

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Sponsoring Organization: **BRANDON UNIVERSITY, OFFICE OF CONTINUING EDUCATION, MANITOBA**

EDUCATIONAL MISSION

Within the Province of Manitoba, Brandon University, through its Arts and Education facilities and the Continuing Education office, has taken a leading role in training native teachers employed in schools that primarily serve Indian children. The University has offered distance education courses since 1981. The aim of the program is to:

- o support two native teacher education programmes that allow the students to remain in their school community;
- o offer the University's resources to outlying areas and dispersed learners while reducing the need for faculty travel, and the costs of transportation.

COMMUNICATION TECHNOLOGIES

- o guided independent study courses are provided through a multi-media offering which includes audio and videotapes, film, print materials, overheads, slides, audioconferencing and Inwatts telephone service
- o basic audioconferencing equipment is available at the University;
- o audioconference bridging is leased on a call-up basis;
- o the University provides Inwatts services for the remote students. Some courses require individual telephone contact between students and instructors on a regularly scheduled basis;
- o all support materials are produced within the University.

PROGRAMME OFFERINGS

- o seven credit courses are offered through the Faculty of Education, including teaching of: reading; elementary school composition; young people's literature; exceptional children; learning disabilities; pre-school education and organizational theory;
- o the Arts Faculty offers a credit course each in Native society and the Canadian North.

EDUCATIONAL DELIVERY SYSTEM

- o all courses are designed to represent a total guided independent study package, providing the student with all the necessary tools to complete a course;
- o registration is through mail or in person;
- o admission standards are the same for on- and off-campus students;
- o counselling is provided through regularly scheduled audioconferences or telephone contacts between learners and instructor;
- o library and research support are provided through the university;
- o examinations may be written in the local community under a proctor or on campus.

ENROLMENT

- o course enrolment is limited to 25 participants per class;
- o learners are primarily teachers from rural or isolated areas;
- o performance of distance learners has been above the average of on-campus students, with completion rates of well over 80%.

ADMINISTRATION

- o programme administration is kept to a minimum and is fully integrated into ongoing university operations, e.g., through the registrar's office or the academic faculties.

SOFTWARE DEVELOPMENT

- o course development and delivery are faculty responsibility;
- o courses are occasionally reviewed and updated;
- o in most cases the distance education courses are offered and have been tested on-campus;
- o the University print shop and other units provide production support to the faculty as required.

TRAINING

- o participation of senior staff in professional training seminars at other institutions which resulted in the conduct of on-campus staff training sessions;
- o the telephone company provided training in the use of the teleconferencing equipment.

FINANCING

- o course development costs have been provided by the office of continuing education and BUNTEP;
- o the programme receives funding from the University general budget, and provincial development grants. Student fees for distance courses are marginally higher than for on-campus courses to offset costs incurred for mailing and telephone charges.

THE FUTURE

- o investigation of Telidon and other visual and supporting technologies, such as microcomputers;
- o enlarged offering of distance education courses;
- o involvement in multi-institutional collaborative research efforts.

SERVICES

o assist other institutions with programme planning or implementation.

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Sponsoring Organization: **INTER-UNIVERSITIES NORTH, MANITOBA**

EDUCATIONAL MISSION

Inter-Universities North (IUN) was established in 1971 as a co-operative programme between the three universities in Manitoba (Brandon, Manitoba and Winnipeg) to:

o provide university credit courses for residents of northern Manitoba.

COMMUNICATION TECHNOLOGIES

o uses the provincial audioconferencing service in some credit courses to overcome problems associated with the traditional face-to-face delivery mode such as inclement weather, scheduling problems, available expertise and travel costs;
o leases the audioconferencing bridge from the provincial telephone company;
o leases from the telephone company audioconference facilities with basic convenors at any of the 18 IUN community sites, depending on local demand for a given course. In the fall of 1986, 10 sites will be included in the network;
o piloted a computer managed instruction component in an audioconferencing course which linked a series of microcomputers to a mainframe computer;
o originates the courses from any of the three participating universities; the University of Manitoba through its own facilities and a resident IUN teleconference co-ordinator ensures overall network performance.

PROGRAMME OFFERINGS

o offered via teleconferencing undergraduate credit courses in biology, education, psychology, economics, sociology, history, native studies and political science;
o provides audioconferencing support for courses which have an enrolment of not less than five, but not more than 15 participants per site;
o used a computer-managed course component in an introductory psychology course.

EDUCATIONAL DELIVERY SYSTEM

o IUN operates 18 northern learning sites which have a part-time co-ordinator;
o students apply and register through any of the three universities as their home university. This can be done in person, at the learning site and by mail;
o academic counselling is the responsibility of the IUN education advisor. IUN assists students to enhance their study skills;
o learning and resource materials are prepared as part of individual courses;
o library materials for IUN are available at ten public, or school libraries in the north and through loan from any of the university libraries;

- o assignments and markings are mailed between student and instructor;
- o academic course quality is the responsibility of the individual course faculties;
- o examinations are the responsibility of the instructors but can be taken at the learning sites under supervision of the co-ordinator.

ENROLMENT

- o in the academic year 1984/85, 35 courses were offered in total through IUN with over 900 course registrations in 17 communities.

ADMINISTRATION

- o IUN does not originate its own courses but its staff of five facilitate and co-ordinate courses from the three co-operating universities and act as liaison with the northern students;
- o at the community level, site co-ordinators assist IUN staff in carrying out operational responsibilities vis-à-vis the student learning activities;
- o to operate the teleconferencing-based courses, the local community co-ordinators work closely with the conference co-ordinator at the University of Manitoba.

SOFTWARE DEVELOPMENT

- o is the full responsibility of the academic faculties, including course content and provision of support materials;
- o the choice of the course delivery method is with IUN and depends on enrolment and budget.

TRAINING

- o on-site and on-campus training to orient instructors and local co-ordinators.

FINANCING

- o a rough estimate suggests an annual cost of $100,000 for the teleconferencing courses, including salaries, travel and long-distance charges;
- o costs for access to bridging equipment and convenors are not carried by IUN.

THE FUTURE

- o expansion of the teleconference programme to offer a complete programme of undergraduate studies;
- o expansion of the teleconference network to additional communities;
- o addition of graphics or visual support to the teleconferencing system.

SERVICES

o none to date.

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R8N 1X4

Sponsoring Organization: **MANITOBA DEPARTMENT OF EDUCATION, EDUCATIONAL TELEVISION, MANITOBA**

EDUCATIONAL MISSION

Manitoba Educational Television (METV) was established in 1984 within the Education Departments Correspondence Branch as a pilot project to:

- o enhance in-school and at-home learning opportunities for Manitobans;
- o enhance the instructional programme offerings of all branches of the provincial Department of Education and, on occasion, of outside organizations, and including college credit courses, pre-school, primary, junior and secondary school programmes, as well as native education, French language and adult literacy programmes;

COMMUNICATION TECHNOLOGIES

- o METV programme offerings are a collaborative effort between the producer, broadcasters and a number of cable systems. In the first year of operation, tapes are physically delivered to the broadcasters and cable operators. One hour of daily programming is aired;
- o adult students view the programmes at home. Curriculum support and enrichment programmes are viewed in classrooms with access to cable or broadcast TV;
- o METV has partial TV production facilities and uses independent producers or purchases existing programmes.

PROGRAMME OFFERINGS

- o two college credit courses, one in child development and one in business management, jointly developed with two community colleges, each composed of 26 TV units;
- o four in-school support programmes are available, ranging from Canadian literature, Canadian geology and history to mathematics, physics, French and computer literacy;
- o adult general programming includes literacy, job skills, German and various health programmes.

EDUCATIONAL DELIVERY SYSTEM

- o learning support for the in-school programmes is the responsibility of the individual schools and teachers, who receive broadcast schedules and programme information from METV. Students register with and receive support from the Department's correspondence branch, including textbooks, guides, assignments and tests;
- o each branch of the department which sponsors a programme is responsible for learning support materials;
- o learning support for the college credit courses is the responsibility of the participating colleges. Students register directly with the colleges and receive study support materials, assignments, and tests through the college;

- o each registered student is assigned an instructor who can be reached by toll-free telephone;
- o final examinations, where applicable, are taken through proctors at several sites throughout the province.

ENROLMENT

- o the programmes are available to an estimated number of 950,000 viewers or 500,000 households in Manitoba through broadcast and cable services;
- o the credit courses, in their first offering, had 35 registrants in the child development course, 43 in the business management course and expect 300 in the computer awareness course.

ADMINISTRATION

- o METV has a staff of five, including the co-ordinator, producer, acquisition person, technician and secretary. It is based within the correspondence branch but has a department-wide mandate;
- o the METV is responsible for packaging programme materials, co-ordination with the broadcast/cable organization, programme selection, contact with independent producers and some local production;
- o the participating departmental branches and colleges independently manage their own responsibilities.

SOFTWARE DEVELOPMENT

- o course production is a joint responsibility of METV and the sponsoring branch or college. METV will, on a cost-reimbursement basis, produce, contract for or purchase the television programming. In the latter case it will produce wrap-around programming;
- o the sponsoring branch/college is responsible for programme content and will also prepare the requisite study guides and support materials;
- o the individual programmes or courses are reviewed through a representative committee.

TRAINING

- o METV staff will support the branches as requested and organizes training seminars on distance education.

FINANCING

- o capital costs were absorbed by the Department; donations were received from cable operators and broadcasters;
- o access to TV distribution is provided free of charge by the local TV operators;

- o the METV budget for the pilot year operation is $181,000, covering 6 months staff salary and $72,000 for programme purchase and operation;
- o the participating branches and colleges absorb their own costs;
- o the costs are covered through provincial approbations, and student fees.

THE FUTURE

- o a programme review in 1986 will set directions for METV.

SERVICES

- o none available.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF MANITOBA, CONTINUING EDUCATION DIVISION, MANITOBA**

EDUCATIONAL MISSION

The University of Manitoba has a long history of providing academic training and professional support to rural and northern Manitoba. The Continuing Education Division was established 11 years ago, replacing the former Extension Division:

- o to provide degree, credit, certificate and general interest programmes in a wide range of academic disciplines and professional fields;
- o to provide access to the University's programmes for off-campus students through a variety of delivery systems;
- o to provide liaison with Inter-University North (see description).

COMMUNICATION TECHNOLOGIES

- o uses teleconferencing services, correspondence courses and on-site instruction at remote sites as delivery methods;
- o uses dial-up audioconferencing as the primary instructional vehicle linking the teleconferencing studios at the university with permanent conferencing facilities in 16 communities in rural and northern Manitoba;
- o the studio is equipped with recording equipment;
- o supplementary videotapes as well as print support materials are developed and produced on-campus.

PROGRAMME OFFERINGS

- o 17 degree credit and 4 non-credit off-campus courses over the course of the academic year;
- o undergraduate degree credit courses for the 1985/86 academic year use teleconferencing as the primary instructional vehicle. Offerings: history, psychology, economics, Native studies, biology, sociology, women's studies, education administration, and Child Development. The full teleconferencing network including IUN will draw upon these course offerings;
- o non-credit continuing professional education for pharmacist;
- o a course in Nursing and certificate programs in management and gerontology are under consideration;
- o the system has been used for occasional sessions or tutorials for non-degree credit correspondence students;
- o audioconferencing system is in use for approximately 3 hours per day, 5 days per week during the academic year. Facilities may be made available at nominal cost to other associations for purposes of professional development offerings.

EDUCATIONAL DELIVERY SYSTEM

- o admission and registration for distance education students is guided by the same policies as apply to on-campus students;
- o groups of students limited to from 5 to 15 in each of 4 or 5 communities for the weekly teleconference classes;

- o instructors are encouraged to visit each site once per term;
- o each course is supported by print materials, videotapes (where available) and includes a series of assignments;
- o instructors are available by telephone during office hours to review assignments and provide academic assistance;
- o students receive their support materials from, and submit their assignment to the Continuing Education Division which provides the primary administrative link for the student. The academic faculties have responsibility for academic student counselling and related matters;
- o library services are available through the extension library;
- o each community site has a part-time co-ordinator who looks after the equipment, sets up the conferences, runs videotapes and provides basic administrative support.

ENROLMENT

- o over 300 students enrolled in 1985/86 in the teleconference courses, in both credit and non-credit areas;
- o learners range from professionals, e.g., pharmacists, working in small communities to people who want to finish their undergraduate degree but cannot attend on-campus courses.

ADMINISTRATION

- o the teleconferencing facilities are administered by the Continuing Education Division through a staff of three full-time co-ordinators, two part-time technicians and sixteen part-time community co-ordinators;
- o the Continuing Education Division is responsible for the preparation and supervision of the supporting learning materials which are planned and developed by the academic faculties.

SOFTWARE DEVELOPMENT

- o teleconferencing courses are also part of regular University offerings and thus fully developed curricula exists;
- o instructors will present their courses live, from a studio, but except for site visitations, when the instructor conducts the class from the site, classes are not presented "in front of a class";
- o courses are adapted to teleteaching methods. Special software, e.g., videotapes or print student-guides are developed as required.

TRAINING

- o community co-ordinators are trained in their technical and administrative duties and in community animation;
- o course instructors are introduced to instructional design and delivery methods and participate in class simulations in order to prepare for the course.

FINANCING

- o the Continuing Education Division has an annual umbrella budget of $4,000,000;
- o 20 audioconference convenors were purchased for about $30,000;
- o two teleconference bridges are rented from the provincial telephone company at an annual cost of $10,000;
- o annual staff and other operating costs for the audioconference network is in the order of $100,000;
- o the system is financed by the regular university budget as well as through student fees which account for about 60% of the direct costs of degree credit courses;
- o course instructors are paid by the Continuing Education Division.

THE FUTURE

- o expand audioconferencing network to 25 remote sites and 5 sites in the city;
- o increase number of course offerings and student enrolment;
- o monitor the development of supplementary video technologies such as electrowriters;
- o employ full-motion one-way video with interactive audioconferencing;
- o explore use of educational communication technologies in on-campus instruction.

SERVICES

- o site visits;
- o instructor training and instructional design consultation for educational entities in Manitoba.

CONTACT

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Sponsoring Organization: **BOARD OF EDUCATION EDUCATIONAL RESOURCES SERVICES LONDON, ONTARIO**

EDUCATIONAL MISSION

The instructional communication system was set up in 1969 to facilitate access by teachers to instructional films in their classroom without the need to physically transport them, or to have to arrange for projection equipment. Sixty-two primary schools and 15 secondary schools benefit from the service.

COMMUNICATION TECHNOLOGIES

- o employs the ITFS frequency, which, until recently, was set aside exclusively for educational uses. Four channels are dedicated for primary schools and five for secondary schools. One secondary school is served in a closed-circuit mode, offering up to four channels simultaneously;
- o distributes, upon request from teachers, video material from a video library. Teacher requests are received by phone. In the secondary schools orders for films are transmitted via the administrative computer network;
- o the ITFS transmitters are co-located with the Educational Resources Services. The schools are located up to 9 km from the transmitters;
- o the administrative computer network linking the secondary schools is controlled via the Board's main computer, some sites are cabled, others use dedicated leased lines from the local carrier;
- o repair and maintenance problems are reportedly minimal with the TV distribution component, but occasionally occur with the computer network;
- o production facilities were closed down when operating expenses were not in line with perceived benefits.

PROGRAMME OFFERINGS

- o mostly instructional tapes, acquired from a variety of sources;
- o some origination of informational programmes or interviews of interest;
- o system use is not saturated but it responds to a steady demand.

EDUCATIONAL DELIVERY SYSTEM

- o service is available continuously during the school day and for night and summer school;
- o support is provided for ongoing classroom activities;
- o requests for material are co-ordinated to prevent unnecessary repetition.

ENROLMENT

- o the system serves about 40,000 students in the school system and annually airs up to 20,000 broadcasts.

ADMINISTRATION

- the Educational Resources Section has a professional and technical staff of 40. A significant percentage of staff time is dedicated to tasks not related to the ITFS or the computer service;
- no professional engineer is on staff.

SOFTWARE DEVELOPMENT PROCESS

- programmes are purchased from existing sources;
- occasional interviews or information sessions originate from the service centre.

TRAINING

- teacher training and orientation to the service occurs during professional development days.

FINANCING

- the original system was installed with a capital grant from the province;
- operating costs for the total Resource Services Division is in the order of $500,000, with the majority going to salaries, $40,000 to repairs and $30,000 to new equipment.

THE FUTURE

- increased and diversified use of the computer network and facilities to support computer-assisted learning in all schools;
- upgrading of the system to provide more flexible service;
- change to another frequency due to increased demands on ITFS services.

SERVICES

- visitors are welcome.

CONTACT

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Sponsoring Organization: **CARLETON UNIVERSITY, SCHOOL OF CONTINUING EDUCATION, ONTARIO**

EDUCATIONAL MISSION

Instructional Television at Carleton University was created in 1978 to provide university level courses to those typically outside the traditional age groups of university students, who are unable to travel to the campus for reasons of great distance, incapacity or inconvenience.

COMMUNICATION TECHNOLOGIES

- o microwave feed from campus to the two Ottawa cable headends for distribution;
- o transmission of live lectures is the main teaching method; for this purpose television classrooms are equipped with the following: one camera focussing on the instructor, one panning the students and the third focussing on drawings or text on a graphic stand or on other visuals (which replace the blackboard; six ceiling microphones throughout the room pick up student questions; off-campus students participate in the classes by telephoning the in-class telephone number;
- o slides are inserted from a telecine chain and films are transferred to video and played back, classroom students view them through the four classroom TV monitors;
- o tapes are kept temporarily in the library and are sent to students outside cabled areas;
- o access to the ITV channel is leased to two local post-secondary institutions.

PROGRAMME OFFERINGS

- o programmes are chosen primarily because of individual faculty interest;
- o 64 full- or half-credit courses have been offered over the network since its inception, roughly divided by 10 courses per academic year;
- o subject matters have varied over the years, including participation by almost all faculties, but with heaviest participation from the faculties of arts and social sciences.

EDUCATIONAL DELIVERY SYSTEM

- o registration and admissions follow the same guidelines and procedures as for on-campus students, but can be handled by mail;
- o assignments and essays are handled by mail;
- o students are encouraged to call the instructors during office hours;
- o some instructors arrange periodic weekend seminars;
- o examinations are mostly held on campus;
- o television students in live broadcast courses receive the same assignments, textbooks and other materials as on-campus students;
- o specific learning packages are prepared for taped productions.

ENROLMENT

- o since inception, about 1900 students have enrolled in the ITV courses, with a relatively constant number of students per year;
- o television students tend to be older than on-campus students, female, employed or homemakers; they enter or re-enter the post-secondary stream and wish to do so in privacy.

ADMINISTRATION

- o of the staff of 12 in the School of Continuing Education, 8 spend half-time or less providing administrative support on the TV courses;
- o academic departments are responsible for course content, materials and instructor time; the ITV students significantly increase the faculty workload, for additional preparation and marking;
- o the instructional aids department is responsible for all technical arrangements and allocates monthly 443 hours staffed by part-time plus 447 per month staffed by full-time people.

SOFTWARE DEVELOPMENT

- o classes are live transmissions of actual on-campus lectures, with a few adaptations to offer the distance students learning stimulae similar to on-campus students, e.g., use of the overhead camera instead of the blackboard;
- o courses are discussed between the three main university divisions involved and reviewed in view of particular learning needs of the distant student.

TRAINING

- o workshops for participating faculty prior to commencement of classes.

FINANCING

- o capital costs are shared by other university programmes;
- o the annual operating budget is in the area of $32,000, with staff salaries accounting for about 60%, the remainder goes to supplies, mail service and contingencies;
- o access to the cable system is free of charge.

THE FUTURE

- o explore teleconferencing for credit and non-credit courses;
- o equip additional TV classrooms;
- o develop administrative mechanisms for full degree and certificate study via ITV;
- o improve student support services.

SERVICES

o site visits;
o consultation in course development.

CONTACT

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Sponsoring Organization: **CONFEDERATION COLLEGE, OUTREACH PROJECT, ONTARIO**

EDUCATIONAL MISSION

In 1978 the college initiated an exploratory programme assessing various distance education methods to:

- o offer high-quality credit educational opportunities that meet the needs of students in a geographically large, low population density area.

COMMUNICATION TECHNOLOGIES

- o a mix of video and audiotapes, teleconferencing facilities and filmstrip viewers are the basic technologies used to support the print-based materials at 12 community learning centres. One microcomputer-based course has been developed;
- o each centre is equipped with one teleconferencing convenor set;
- o learning centres are portable but tend to remain in a community for 3 to 4 years before moving;
- o teleconferences are arranged through the college's internal exchange or are leased through the local carrier;
- o technical and maintenance support in the college's area of outreach are difficult to arrange and all equipment and services are chosen with a view to reliability.

PROGRAMME OFFERINGS

- o 42 mostly first-year credit courses, spanning the 15-week semester are available. Reflecting the college's mandate, many of the courses are oriented toward skills development and toward the particular needs of its clients, e.g., Indian bands or health and other service providers;
- o multi-course certificates are available for part-time study in ambulance and emergency care, for developmental services, general business, early childhood education, in critical care nursing and for registered nurses;
- o the various credit subjects of a certificate programme are offered over a two to four-year period, with two or three courses per year;
- o the availability of a given course in a community is determined on community demand and the community schedule for various certificates (i.e., is a learning centre already there).

EDUCATIONAL DELIVERY SYSTEM

- o twelve community learning centres are available up to 18 hours a day for individuals or group access to learning resources;
- o the centres are not staffed; access is available through the local facilitator (group member) or the premise owner;
- o weekly peer group sessions for group exercise, discussions and laboratory work;
- o weekly teleconference sessions with the course instructor are taped for absent students;

- o toll-free phone service for students to the college for counselling, support services or learning problems;
- o registration is through one of the 5 college area offices or through the Outreach office by mail;
- o registration for Outreach students coincides with registration for on-campus students but groups can register any time provided a learning centre is available;
- o assessment, credit and all administrative matters are handled through the Outreach office;
- o entry requirements for Outreach students are the same as for on-campus students;
- o tests and examinations are the same as in the on-campus courses but can be taken locally under a proctor and mailed to the college for marking.

ENROLMENT

- o since its inception Outreach has provided 368 student credit courses, and 15 completed certificate programmes. Typically 230 students are enrolled over a semester in Outreach studies;
- o emphasis is on small groups with 5-10 students a course at any given time;
- o performance of Outreach students is equal to or better than for on-campus students due to specially prepared learning resources;
- o most students are employed, but lack training in their fields, have a grade 12 education or more and live over 100 miles from the main campus, and about 10 miles from the learning centre.

ADMINISTRATION

- o about 1/10 of the Continuing Education Division's staff functions relate to distance education. Total division staff is 115 full-time, supplemented with part-time teachers;
- o a full-time distance education manager is responsible for curriculum, materials development and for delivery of all distance education;
- o specialist instructors are often seconded to the Outreach course team, which includes project assistants and editors;
- o audioconferencing facilities and services, development of video or audiotapes and other development and production tasks are the responsibility of and are co-ordinated by Outreach.

SOFTWARE DEVELOPMENT

- o the instructional design team of three defines the curriculum and and course design, reviews existing materials and develops appropriate print materials and other software;
- o weekly student feed-back forms are submitted by the instructor to Outreach and help to identify learning problems and learning support needs in a timely fashion.

TRAINING

- o faculty receive print materials and attend workshops to familiarize them with distance education approaches, group facilitation and audioconferencing methods;
- o start-up sessions to familiarize students with the course materials, independent study methods, groups participation, and audioconferencing technologies. A student handbook accompanies each course;
- o the facilitator receives training by teleconference in group leading and equipment usage.

FINANCING

- o an annual operating budget of $220,000 for development and delivery with the following key expenditures; staff $200,000 and telecommunication $1,200 excluding outgoing telephone calls;
- o capital budget, including audioconferencing equipment for the 12 sites was in the order of $65,000;
- o the budget for the development of a new course is approved on its individual merit;
- o funds for Outreach are provided through college approbations, student tuition and special projects, which vary yearly.

THE FUTURE

- o expand variety of certificate and diploma programmes offered to meet needs of the small groups of students in isolated communities;
- o share conferencing bridge with other users to achieve economy of scale;
- o monitor new technologies for their potential to serve the clientele and geography of the region, including TVRO's and local cable services.

SERVICES

- o consulting in distance education methodologies--curricula and materials development;
- o provide instructor training;
- o sale or co-production of courseware.

CONTACT

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Sponsoring Organization: **CJRT-FM RADIO, OPEN COLLEGE, ONTARIO**

EDUCATIONAL MISSION

Open College is the educational service of radio station CJRT-FM. Its aim is to:

- o provide adults with a way back into the educational stream;
- o provide courses in a convenient form for people who want to improve their professional qualifications but who cannot or do not wish to attend on-campus classes.

COMMUNICATION TECHNOLOGIES

- o FM radio broadcasts of 1 hour repeated at three different times per week;
- o cassettes of the radio broadcasts for students outside the coverage area as well as for subsequent years;
- o correspondence courses.

PROGRAMME OFFERINGS

- o in the academic year 1985/86, 19 credit courses of which 6 are radio-based, 6 cassette-based and 7 correspondence-based;
- o programmes are chosen to be transferable to a wide range of university programmes. All university-level courses are credited toward degree programmes at two degree-granting institutions;
- o Ryerson Polytechnical Institute's Certificate in Gerontology and Certificate in Public Administration incorporate a number of Open College courses.

EDUCATIONAL DELIVERY SYSTEM

- o admission is open, but students have to seek admission to a participating post-secondary institution to gain credit;
- o print support packages are provided with most courses, and include a workbook, study guide and basic texts;
- o each student can work with a course tutor through the help of a student co-ordinator;
- o some tutors arrange weekend seminars or special workshops.

ENROLMENT

- o approximately 500 students per semester (e.g. fall 1985). An average of 20,000 people listen to the broadcasts;
- o registered students are largely female, over 30 years old and employed.

ADMINISTRATION

- o 11 full-time management, production and student liaison staff with 2 to 4 content experts on short-term contract;
- o broadcast and studio facilities are staffed and managed by the radio station.

SOFTWARE DEVELOPMENT

- o the production team for a credit course includes an instructional radio producer and one or two academics. The development and production of a two-semester course usually takes 18 months;
- o the academic advisors are responsible for course content and quality, workbooks, assignments and examinations;
- o producers look after good radio production, including interviews or on-air presentation and techniques;
- o course tutors are hired for each course to provide academic guidance for the students. These are not usually the same people as the course writers.

TRAINING

- o radio producers are responsible for training the course writers in all aspects of radio production and utilization.

FINANCING

- o a two-semester credit course typically costs $150,000 to produce;
- o funds come from student fees, and appropriations from the provincial government;
- o courses double for radio programmes on an educational station and air-time is not a direct budget charge. The crediting institutions provide library and study facility.

THE FUTURE

- o possible extension of radio coverage through satellite services (via TVO);
- o continued production of credit or non-credit programmes, in collaboration with other organizations.

SERVICES

- o consultation and training in all aspects of course design for educational radio.

CONTACT

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Sponsoring Organization: **GEORGIAN COLLEGE, SCHOOL OF CONTINUOUS LEARNING, ONTARIO**

EDUCATIONAL MISSION

- o to offer credit, certificate and general interest programmes to residents in its area of service, using distance education delivery methods, appropriate to the regional geography and demography.

COMMUNICATION TECHNOLOGIES

- o print course study-guides supplementary and audiovisual aids materials represent the principal instructional methods;
- o learning resource centres in each location are equipped with teleconference units as well as additional references and resources specific to each course being offered, the rooms have been acoustically treated to achieve good sound quality; as they are used for weekly group meetings and hour-long teleconference tutorials with the instructor;
- o the instructor is responsible for making the calls at a predetermined time the same night of each week from a location of his/her choice;
- o the conferencing equipment is rented from the telephone company, and access to conferencing bridge is provided on-demand by the phone company.

PROGRAMME OFFERINGS

- o a twelve-unit ambulance and emergency care certificate programme, offered since 1983 on a part-time basis over a three-year period;
- o the programme was developed by Confederation College is offered by three northern colleges.

EDUCATIONAL DELIVERY SYSTEM

- o detailed study guides and peer group meetings at learning resource centres are scheduled prior to tutorial sessions with the instructor;
- o learning resource centres are equipped with additional materials, including videotapes;
- o the instructor meets with the students at the beginning of each course which facilitates student-instructor relationship;
- o practical sessions are conducted on-site with a skilled practitioner present at scheduled times;
- o registration and examinations are administered by the college programme supervisor at the learning centres;
- o registration is at the beginning of each course;
- o program entry is based on Ministry of Health requirements.

ENROLMENT

- o annual enrolment of about 32 students in 2 locations, with a completion rate of up to 75%;
- o students must be employed, full-time or volunteer with an ambulance service or dispatch centre.

ADMINISTRATION

- o one part-time supervisor co-ordinates the programme;
- o faculty member provides student support via teleconferencing tutorials on a part-time contract basis.

SOFTWARE DEVELOPMENT

- o development, revisions, and materials are provided through Confederation College with feedback provided by the programme supervisor;
- o changes, revisions and evaluations are initiated bi-annually by representatives from the three participating colleges.

TRAINING

- o faculty orientation to the distance-learning method is provided by printed materials, and sessions with programme supervisor;
- o student orientation materials and group sessions are offered to assist the student in use of independent learning system.

FINANCING

- o cost to the College for each of the twelve units of the course ranges from $1,000 to $2,500 per location depending on the nature of the unit;
- o salaries of the consulting faculty account for 45% of expenses, purchase of the software for 20%, and the teleconferences for 25%, with the remainder for travel and other individual unit needs;
- o the programme is financed by student fees and provincial funding based on student contact hours.

THE FUTURE

- o offer an increasing number of programmes through distance education.

SERVICES

- o none at present.

CONTACT

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Sponsoring Organization: **GUELPH UNIVERSITY, DEPARTMENT OF RURAL EXTENSION AND OFFICE OF EDUCATIONAL PRACTICE (OEP) ONTARIO**

EDUCATIONAL MISSION

- o to investigate communication technologies that enhance the delivery of education and information services to those living in rural and remote areas;
- o to assist faculty in utilizing effective instructional methods, including advanced technologies in their on- and off-campus work.

COMMUNICATION TECHNOLOGIES

- o the proprietary Videotex Integrated Teaching and Learning (VITAL) software (using Telidon), computer conferencing and audioconferencing services are three technological delivery systems explored by the University;
- o computer conferencing and electronic mail services are provided by the university on a fee basis to the education community throughout the country, as well as internationally;
- o some audioconferencing services are used to support off-campus courses;
- o study stations at the university library and a few at student homes provide the learner access the videotex service. They are interfaced to microcomputers with colour displays. Students do not directly read from the fileserver but from a buffer. Two study stations are served by one buffer;
- o networking among the videotex system components is achieved through the campus computer network, dial-up services and packet switched networks. To eliminate long-distance charges, an alternative disc program is under development which provides the full interactivity of the system software;
- o course authoring is provided through a two stage system: stage 1 involves the creation of Telidon-based graphic using proprietary software; stage 2 involves the assembly of the graphic module and associated text into module file using the "VITAL" software;
- o access to the modules is via user ID and password which allows for recordkeeping of individual student activity;
- o the network is serviced as part of the regular procedures of the university computer network services.

PROGRAMME OFFERINGS

- o VITAL study and self-assessment modules of about 20 minutes are offered as study components in twelve courses, along with in-class lectures or study materials;
- o most programme offerings support credit courses and are tied into the regular academic schedules.

EDUCATIONAL DELIVERY SYSTEM

- o registration for communication supported courses falls within the regular routine of the University, so does admission and examination;

o instructors and students have access to the Office of Educational Practices (OEP) when they need support with the technology.

ENROLMENT

o in the 12 VITAL supported courses, approximately 1,200 students use the system annually, or from 50 to 600 per course;
o comparative research shows improved student performance as well as high acceptance.

ADMINISTRATION

o VITAL is operated within OEP by an autonomous unit staffed by a manager, a data base administrator and three design specialists, supplemented by consultants.

SOFTWARE DEVELOPMENT

o VITAL staff and interested faculty jointly develop content and treatment proposal;
o VITAL staff will maintain responsibility for graphics development, the instructor provides content expertize. A series of review meetings ensure that the visual treatment optimally meets the content requirements. Materials are pre-tested on a student sample prior to their finalization;
o audioconferencing support for courses is achieved through live presentations similar to class-room lectures, with sufficient time allowed for student participation and supported by course outlines and study guides.

TRAINING

o for VITAL, training for instructors and learners are achieved through demonstrations;
o instructors who develop a VITAL component participate in a series of training steps, including workshops and individual sessions in which a detailed courseware plan is developed.

FINANCING

o costs for all components of the VITAL system hardware were about $200,000, three quarters of which was provided through a federal government grant;
o annual operating costs for VITAL, provided by the University, are about $150,000, with $120,000 going to personnel, $20,000 to software, $10,000 to miscellaneous expenses.

THE FUTURE

- o continue study and improvement of VITAL software and of faculty workload associated with VITAL programming;
- o continue collaboration with vendors on enhanced equipment performance and reduced costs.

SERVICES

- o sale of VITAL software;
- o consulting and training for specific aspects of software development as well as for complete system design and implementation;
- o site visits.

CONTACT

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Rural Extension Studies
University of Guelph
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Sponsoring Organization: **HUMBER COLLEGE, TECHNOLOGY AND OPEN LEARNING DIVISIONS, ONTARIO**

EDUCATIONAL MISSION

The programme, in the development phase, will be available in late 1986 to:

- o develop a province-wide, co-operative distance education programme among community colleges in the areas of occupational safety and occupational hygiene;
- o provide people employed in occupational safety and occupational hygiene with specific professional expertize through a flexible and accessible educational model;
- o reduce the high drop-out rates of correspondence courses through interactive distance education methods;
- o to undertake a rigorous evaluation of technology performance and student learning.

COMMUNICATION TECHNOLOGIES

- o print-based materials, an interactive microcomputer and video recorder system are main components of the learning system. Occasional use of teleconferencing and electronic messaging;
- o study centres, which may be a person's home, an industrial setting, or an educational institution will link the student via a modem with a centralized computer system. This system will support student learning as well as administration and management.

PROGRAMME OFFERINGS

- o diploma programmes in occupational safty and occupational hygiene, consisting of 12 professional academic courses;
- o the programme is developed co-operatively among a number of community colleges and will be offered by participating colleges throughout Ontario.

EDUCATIONAL DELIVERY SYSTEM

- o students anywhere in the province will have access to learning support services through their participating regional college;
- o learning support will include regional tutors, computer-managed learning software, counselling (via computer, telephone, in person) and (computer-managed) testing;
- o admissions, registration and student records are managed in co-operation with participating colleges;
- o students can work at their own home or at a learning centre;
- o admission to the courses is based on prerequisite fundamental courses from previous post-secondary education. Access to individual courses is possible without prerequisites;
- o the entire programme can be completed in 4 or 5 years and is comparable to other part-time learning programmes.

ENROLMENT

- target enrolment is 1,500 registrations per year when fully implemented (in about 10 years).

ADMINISTRATION

- Humber College, with a core staff of 5, is co-ordinating this joint activity of 4 provincial colleges;
- each participating college is responsible for marketing the programs;
- each participating college will have a project co-ordinator and may also participate as a student centre;
- Humber College's co-ordination activities include development of learning strategies and materials, development of requisite computer software and video segments;
- an advisory committee representing industry, labour, government and professional associations gives overall guidance.

SOFTWARE DEVELOPMENT

- course materials are developed jointly by subject matter experts, instructional designers and computer programmers;
- course materials are developed centrally for use throughout Ontario using a distance education mode and different technologies. An advisory group provides peer review of course content.

TRAINING

- seminars for course writers and others to develop course teams.

FINANCING

- project development is financed through a provincial grant;
- the colleges contribute staff time and facilities to the project;
- projections show that student fees, industry and government support will cover the anticipated annual operating costs.

THE FUTURE

- accelerated course production to cover all requisite courses, once the evaluation of the first phase project is completed;
- exploration of any new and additional technologies.

SERVICES

- sale of existing learning packages and co-operative development of additional courses;
- site visits;
- laboratory hands-on seminars.

CONTACT

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Sponsoring Organization: **LAURENTIAN UNIVERSITY, CENTRE FOR CONTINUING EDUCATION, ONTARIO**

EDUCATIONAL MISSION

- o to provide continuing education and part-time study opportunities for residents of northeastern Ontario.

COMMUNICATION TECHNOLOGIES

- o a mix of four delivery systems is used. Print is the primary vehicle. Learning centres in 25 communities offer facilities for reviewing videotapes and for study groups. Television programmes support 6 courses (winter 1985) and audioconference discussions support 3 courses; one course is given by teleconference alone, linking 5 centres;
- o TV programmes which are produced or acquired by the University are broadcast by regional television stations. The University integrates into its credit programme some of TVO's courses, broadcast on TVO's network (see TVOntario);
- o the audioconferencing bridge of the Northern Ontario Telehealth Network (see description) is rented for the teleconference supported courses;
- o microphones and loudspeakers at the learning centre and on-campus are owned and operated by the university; the telephone links are provided on demand by the telephone carrier;
- o students participating in televised courses are encouraged to call the course instructor collect when learning problems arise;
- o on-campus television production facilities are available;
- o an on-campus pilot project using Telidon was conducted by the physical education department.

PROGRAMME OFFERINGS

- o of the 50 distance education courses offered in the winter of 1985, 9 use TV or audioconferencing or a mix of both. They represent one course each in geology and psychology, two in sociology and four in religious studies;
- o an entire B.A. degree can be completed through distance education in law and justice, religious studies and psychology. In addition to those listed above, television or audioconference courses are available in the following subjects: biology, chemistry, economics, English, French, geography, history, mathematics, native studies, philosophy, physics, political science, sociology and women's studies.

EDUCATIONAL DELIVERY SYSTEM

- o registration for distance-education courses can be accomplished by phone, or at a number of learning centres, following the same requirements as for on-campus part-time students;
- o admission is governed by the same rules as apply to on-campus part-time students;
- o examinations can be taken under a proctor at the learning centres;

- o the Centre is the main link between student and University. In TV-based courses, students are encouraged to call the course instructor collect;
- o students receive a study package including texts, study guides, broadcast or conferencing schedules, as applicable, as well as name and phone number of course instructor and counselling services;
- o learning centres are equiped with videotapes and playback equipment, basic library resources and provide the opportunity for groups of students to discuss the course materials.

ENROLMENT

- o over 1,700 registrations for distance education per year.

ADMINISTRATION

- o the Centre has a staff of 8, of which 25 work on the Distance Education activities;
- o the learning centres are based in local libraries or schools;
- o television production is handled by a separate unit, in a team which includes staff and the content expert from the academic faculties;
- o while the Centre is responsible for all student liaison, academic counselling and administrative contacts as well as for the development of the study packages, the academic faculties are responsible for academic quality.

SOFTWARE DEVELOPMENT

- o distance education courses are adaptations of on-campus courses and are developed by a course team and are approved by the university senate;
- o TV production is kept simple, primarily recording instructors and guests with some inserts or demonstrations edited into the main footage;
- o the Telidon data base used by the physical education department was developed by a private company.

TRAINING

- o limited faculty training is provided on an individual basis.

FINANCING

- o access to the TV transmission system is free of charge;
- o use of TVO's courses is at no cost but the university pays for some course development;
- o expenses are covered from student fees, ministry allocations and lease of courses.

THE FUTURE

- o expansion of the teleconferencing network;
- o consideration of a computer network;
- o addition of new courses to the inventory, including an advanced nursing degree;
- o co-operation with other institutions in course development and course sharing.

SERVICES

- o consulting in all aspects of distance education;
- o lease of courseware;
- o site visits.

CONTACT

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Sponsoring Organization: **MINISTRY OF EDUCATION, INDEPENDENT LEARNING CENTRE, ONTARIO**

EDUCATIONAL MISSION

The Independent Learning Centre developed out of the provincial correspondence branch which was established in 1926. Since then its mandate has been enlarged or changed to serve small schools which are unable to offer a broad programme of study. The Centre also aims to:

- o provide elementary and secondary-level education in English and French to residents of Ontario who do not have access to or cannot attend the traditional classroom;
- o keep abreast of and use new educational delivery systems which meet the needs of the clients.

COMMUNICATION TECHNOLOGIES

- o the majority of the courses are correspondence-based, but developments are underway for microcomputer and videodisk-based courses;
- o integrated print and computer-based learning materials are being actively developed;
- o students must have access to the appropriate microcomputer hardware, which is being introduced by boards of education throughout Ontario;
- o the microcomputers are not networked to a central base.

PROGRAMME OFFERINGS

- o at present,more than 200 correspondence courses are offered;
- o nine microcomputer-based courses counting toward a secondary school diploma are under development;
- o one Grade 9, interactive videodisk-based English course is planned and under development;
- o four grade 11 and three grade 12 microcomputer-based courses in the areas of computer sciences and data processing;
- o one Grade 11 microcomputer-based course in accounting and one Grade 13 course in calculus are planned.

EDUCATIONAL DELIVERY SYSTEM

- o registration will be handled directly by the Learning Centre;
- o students receive fully integrated study packages, including print materials. The courseware will be resident on hard disk on the microcomputer;
- o counselling is available either by phone/mail to the centre or through a local tutor at the established learning centres or at participating secondary schools;
- o admission to the courses is open to any student;
- o examination is administered through a proctor at learning sites;
- o assignments are built into the software and are part of the print materials.

ENROLMENT

o no statistics are available yet regarding the microcomputer courses;
o currently over 100,000 students are enrolled in the correspondence courses.

ADMINISTRATION

o the Learning Centre's staff of about 100 handles all student relations as well as course development and grants the credits.

SOFTWARE DEVELOPMENT

o courses are developed from scratch; with the development process and team composition varying from course to course;
o the development of CAI resource materials for some existing courses is under dicussion.

TRAINING

o courses are self supportive, but include a study guide.

FINANCING

o operating and development costs are carried by the ministry;
o courses are free for the students.

THE FUTURE

o dramatic increase of computer-mediated courses;
o operation of a pilot project with electronic mail support for traditional correspondence courses.

SERVICES

o consulting, training, sale of courseware.

CONTACT

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Sponsoring Organization: **NORTHEASTERN ONTARIO TELEHEALTH NETWORK (NOTN), ONTARIO**

EDUCATIONAL MISSION

NOTN has 35 member institutions. It was created in 1984 as a non-profit corporation to establish communication systems.

- o to promote self-sufficiency in the provision of health care;
- o to improve access to educational opportunities, diagnostic, therapeutic, consultative and administrative services;
- o to allow patients to receive services in their local communities.

COMMUNICATION TECHNOLOGIES

- o a 20-port audioconference bridge, owned by NOTN, controls the network. Up to 20 sites typically link into the bridge;
- o each member organization is responsible for its own conferencing equipment and rooms;
- o sessions originate at speaker's site. All sessions are taped;
- o participating institutions call into the bridge via the regular telephone network;
- o NOTN bridges its members for select sessions with other audioconference systems throughout the continent;
- o pilot projects testing two- and one-way video as well as freeze-frame video were conducted;
- o basic equipment maintenance is handled in-house.

PROGRAMME OFFERINGS

- o on the average, 8 hours per week;
- o approximately 3 hours of non-credit in-house programming, supplemented by an equal number of programmes bought from other health-care networks. Topics range from clinical to social issues;
- o some administrative pilot uses in therapeutics;
- o a number of educational institutions in the North rent the facilities to distribute their credit courses (see Laurentian University).

EDUCATIONAL DELIVERY SYSTEM

- o each participating site appoints an in-service educational co-ordinator who promotes the sessions, looks after the facilities, distributes supplementary materials;
- o the type of uses of the system does not necessitate registration or examination;
- o feedback from participants for future programme areas is gathered through conference feedback forms and representatives of participating institutions on NOTN's board.

ENROLMENT

- o between July and October 1985, 17 programme hours attracted over 1,000 participants;
- o participation is voluntary, but encouraged by the member institutions;
- o high satisfaction is achieved in most sessions.

ADMINISTRATION

- o the executive director, an education co-ordinator, a teleconference technician and clerical staff operate NOTN, including its educational uses. Each member institution appoints a part-time co-ordinator;
- o the office overseas the full range of functions necessary, including materials distribution, scheduling, promotion, session development and evaluation;
- o each member institution is represented on the board.

SOFTWARE DEVELOPMENT

- o with input from member institutions, a quarterly programme is developed by the education co-ordinator. Speakers are recruited from hospitals or universities;
- o network staff assist speakers in the production of support materials. Programs are predominantly interactive lectures and discussions.

TRAINING

- o individualized training, including a manual, for presenters and local resource people;
- o group presentations and manuals for learners.

FINANCING

- o a provincial government grant of $1,050,000 covers the first three years of operation;
- o there is no charge for participation at present;
- o after the grant period, NOTN is expected to be financially self-supporting or to receive follow-on grants depending on a project evaluation.

THE FUTURE

- o continued investigation of new technologies, including computer networking conferencing and freeze frame as well as interactive video.

SERVICES

- o consulting, training, demonstrations.

CONTACT

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Sponsoring Organization: **ONTARIO INSTITUTE FOR STUDIES IN EDUCATION**
COMPUTING SERVICES GROUP, ONTARIO

EDUCATIONAL MISSION

As the Graduate School of Education of the University of Toronto, O.I.S.E. has the mission to:

- o teach graduate-level degree courses, to undertake research in education, and to contribute to professional field development by disseminating the results of educational studies throughout Ontario.

COMMUNICATION TECHNOLOGIES

- o as parts of the Institute's use of distance mode delivery systems, a computerconferencing facility links students with access to a microcomputer, modem and telephone lines to the computerconferencing system housed on a minicomputer at the Institute, for synchronous and asynchronous conferencing, electronic mail services, electronic voting and library access;
- o links five field centres into a network to co-ordinate activities and share information and decision-making;
- o links members of a project researching Women and Computers in Education;
- o access to the computer network is through the regular telephone network combined with access through a data carrier as available;
- o microcomputer, modem and communications software are provided by the learners.

PROGRAMME OFFERINGS

- o computer conferencing is the principal vehicle of delivery in 1985/86 for two graduate level credit courses: "Perspectives in Community Development" and "Women and Computers in Education";
- o computer conferencing is used to facilitate on-line collaborative research; it supports the provincial Women Educator's Computer Network; it was employed in the co-ordination of analysis and reporting for an international study of Mathematics Achievement; it provides operational support to field centres; it enhances on-campus courses with follow-up discussion.

EDUCATIONAL DELIVERY SYSTEM

- o registration process, entry requirements, course schedules and course requirements are the same as for on-campus students;
- o courses begin with a face-to-face one day workshop, followed by a second face-to-face evaluation session;
- o learning materials for the student also include system manuals, system reference guide, notes on computerconferencing and documentation on system accessing;
- o instructor, computerconference co-ordinator and other participants provide user support by telephone or electronic messaging;
- o students are expected to spend 3 hours per week in group discussion within the conferencing system and to log on a minimum of 2 times per week.

ENROLMENT

- o class size has been limited to between 15 and 20 graduate students;
- o participants in the pilot Women Educators Computer Network are from all regions in Ontario.

ADMINISTRATION

- o courses are developed by the full-time conferencing co-ordinator, with support from the Institute's Computer Services group. The course instructor is a member of the academic faculty.

SOFTWARE DEVELOPMENT

- o on-line computerconferencing courses generally emulate a seminar format. The on-line presentation by the instructor relates to the weekly reading materials and students are expected to respond to questions and issues;
- o on-line working groups (of 5-8 individuals collaborating in research activities) are also part of the design;
- o class presentations and course assignments are done on-line, although major final papers are usually mailed in to the instructor.

TRAINING

- o hands-on workshops and on-line introduction to the system.

FINANCING

- o computerconferencing software and hardware are part of the existing capacity of the Institute, which also partially supports the salary of the conferencing co-ordinator.

THE FUTURE

- o continued experimentation with computer networking to support the requirement of graduate-level distance education, including access to library services or joint research activities;
- o increased emphasis on researching educational applications of computerconferencing and related design issues such as learning/teaching styles in an electronic environment.

SERVICES

- o computerconference user training as well as system and service design, management and implementation.

CONTACT

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Sponsoring Organization: **ONTARIO INSTITUTE FOR STUDIES IN EDUCATION INSTRUCTIONAL RESOURCES DEVELOPMENT UNIT, ONTARIO**

EDUCATIONAL MISSION

As a Graduate School of Education of the University of Toronto, OISE's mission is to:

- o teach graduate-level degree courses;
- o to undertake research in education;
- o contribute to professional field development by disseminating the results of educational studies throughout Ontario.

COMMUNICATION TECHNOLOGIES

- o as part of of its use of distance-mode delivery systems, the Institute leases audioconference bridge facilities and uses the common carrier service on a dial-up basis. Typically, an audioconference class connects 12 to 16 participants;
- o sites are established in the local OISE Field Centre or at a local school facility. Audioconference equipment owned by OISE is sent to each site for the duration of the course;
- o enables students and faculty to hold seminars and discussions primarily based on integrated print and audio course materials.

PROGRAMME OFFERINGS

- o titles and sites for the audioconferencing supported course(s) are planned each year according to various supply and demand factors.

EDUCATIONAL DELIVERY SYSTEM

- o registration process, entry requirements, course schedules and course requirements are the same as for on-campus students;
- o students receive their courseware, library material and student manuals at the first face-to-face workshop, the site of which may be in the field or in Toronto;
- o students meet regularly at local sites in groups of from 8 to 12 for structured discussions among themselves and with the instructor;
- o over a 13-week course period, two face-to-face and from 5 to 9 audioconference meetings take place;
- o students also have individual telephone access to the instructor;
- o examination can be taken on-campus or at the local study sites under proctor supervision.

ENROLMENT

- o smaller enrolments than many on-campus courses reflecting general off-campus student numbers, and the experimental stage of the project;
- o completion rates for the audioconference courses conducted so far are 100% and student reactions compare well to on-campus courses.

ADMINISTRATION

- o the course development is administered under the direction of the head of the Instructional Resources Development Unit (IRDU), with support from an audio producer and graphic designer;
- o faculty members provide content direction during production and meet with students on a weekly or bi-weekly base during the courses.

SOFTWARE DEVELOPMENT

- o courses are prepared jointly by the head of the IRDU and faculty members with technical support from production staff;
- o materials are reviewed by external reviewers prior to implementation; students provide feedback for revisions;
- o courses generally follow a seminar format.

TRAINING

- o faculty are prepared and guided before and during the audioconferencing sessions.

FINANCING

- o costs incurred to develop distance-mode audioconference course are absorbed within the existing OISE budget.

THE FUTURE

- o continued experimentation with audio networking to support the requirements of graduate level distance education;
- o exploration of narrow-band transmission of visual information.

SERVICES

- o none external.

CONTACT

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Sponsoring Organization: **SHERIDAN COLLEGE, DISTANCE EDUCATION AND TELECONFERENCING PROJECT, ONTARIO**

EDUCATIONAL MISSION

A "New Directions" policy in 1982 stimulated an extensive research and development program with over 70 individual projects, many of them exploring communications technologies for education. Distance Education pilot projects are conducted to:

- o assess the impact and potential of correspondence-, computer-, video-, and audioconferencing-based delivery methods;
- o provide support and leadership to faculty and staff in the utilization of new technologies in post secondary, continuing education and for emerging non-traditional college clients.

COMMUNICATION TECHNOLOGIES

- o interactive video, satellite delivery, audioconferencing, cable television, radio and video and audio-cassette, print and computer-based courses are available off-campus in pilot projects;
- o audioconferencing services are leased from different suppliers and link the instructor with up to 5 participating sites. Students are assembled at conference facilities at regional hospitals. The hospital facilities are shared with other users and services;
- o satellite programming originated from U.S. sources is accessed through the college's receive-only earth station (TVRO) and distributed campus-wide through the internal R.F. delivery system;
- o programming originated by TVOntario is accessible to students through three local cable systems and the RF system;
- o a computer-supported pilot course has about 14 students, who use their own computers to access the University's mainframe;
- o audio, print, computer and videodisk programme development is handled internally. Video products are purchased.

PROGRAMME OFFERINGS

- o in the 1985/86 academic year, seven pilot distance education courses are offered. Six of these are degree-credit programs;
- o five courses use TVO programming and video-cassettes as the key delivery method. Subject matters include business, computer literacy, photography, office automation, and business communications. Typically 6-9 hours of video programming is part of each study package; delivered in 1/2 hour formats;
- o the two audioconferencing courses deal with care for the mentally retarded and English literature. Bi-weekly sessions of 1-2 hours in length, interspersed with individual telephone contacts, supports the two courses;
- o 2-3 sessions per month are typically received from the U.S. and include engineering, data processing, business management, health and fitness programmes for coaches and athletes. They are offered as non-credit, special seminars.

EDUCATIONAL DELIVERY SYSTEM

- o admission policy varies among courses, but degree-credit students are subject to the same policies as on-campus students;
- o registration is handled through the continuing education faculty, except for the U.S. originated programmes which are handled by the conference centre;
- o students view the cable TV courses in their homes, receive home study materials and study assignments and also attend three or four on-campus meetings for discussion and review;
- o telephone office hours are held by the course instructor.

ENROLMENT

- o enrolment in credit courses in 1985/86 is 180, in non-credit courses and special seminars it is between 600 and 700;
- o observations of an emerging student profile are: reluctance to re-enter on-campus courses after long absence from studies, and competing time demands because of work and family responsibilities.

ADMINISTRATION

- o one full-time assistant, a full-time co-ordinator and a part-time technician operate the program under the Dean's management. Tasks include student liaison, course material and content development, scheduling, preparation of orientation packages and liaison with cable companies, instructors and teleconference arrangements;
- o faculty are involved on a fee-for-service basis and approve the educational materials, act as facilitators/lecturer in academic matters and evaluate the students.

SOFTWARE DEVELOPMENT

- o in co-operation with industry and through other needed assignments, programme areas are identified. In keeping with the trend towards increased use of technology, the programmes are reviewed by a Development Committee to determine the need for a course and the most appropriate delivery methods;
- o the TV courses offered to date are purchased; then a writer and a technical support specialist adapt it to suit the college's needs, often including print materials or wrap-around video;
- o the audioconference course is an adaptation of an on-campus course with changes appropriate for distance education.

TRAINING

- o students receive study guides;
- o faculty are exposed to the new delivery systems during professional development days and receive support to attend conferences on distance education.

FINANCING

o the annual operating budget is in the $60,000 to $70,000 range and supports purchase and modification of audio and TV-based course materials and licensing arrangements, faculty and staff support for professional development.

THE FUTURE

o co-operative courseware development;
o continued exploration of videodisk and computer technologies.

SERVICES

o sale of courseware;
o consulting services for teleconferencing system development and programming.

CONTACT

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Sponsoring Organization: **TELEMEDICINE FOR ONTARIO (TFO)**

EDUCATIONAL MISSION

The TFO project was funded by the Ministry of Health in 1984 and is jointly supported by the five faculties of Health Sciences from the Universities of Toronto, Western Ontario, Ottawa, from Queen's and McMaster to:

- o provide continuing health education for physicians, nurses, and other health-care professionals through distance education.

COMMUNICATION TECHNOLOGIES

- o audioconferencing is the primary delivery mode;
- o as many as 46 sites participated in a single teleconference;
- o teleconferencing bridge and services are leased from various suppliers on an as-needed basis;
- o any of the participating hospitals and institutions can originate sessions from their own studios;
- o slow scan equipment is being used for demonstration purposes;
- o TFO uses for programme origination the sites of the facilities of each of the 5 health sciences studios;
- o participating institutions are responsible for their own reception equipment;
- o TV programmes, distributed via cable, are offered for physicians.

PROGRAMME OFFERINGS

- o a weekly average of 9 credit and non-credit continuing health education programmes;
- o physician programmes range from continuing education credit lectures for Family Physicians, to specialty programmes, to lectures, such as grand rounds;
- o allied health programming can be a mini-series of 8 lectures for a specialty nurses group or can be of general interest such as a credit course in management theory.

EDUCATIONAL DELIVERY SYSTEM

- o slides, videotapes and print materials are sent to the registered sites two weeks in advance;
- o a co-ordinator is appointed by each participating institution to promote the sessions, look after the facilities, etc.;
- o participants in credit courses must meet the admission requirements of the educational institution responsible for the course credit. The provision of study guides as well as the need for examination is al the discretion of the institution.

ENROLMENT

- o approximately 140 sites have registered for different programmes during the 1985-86 academic year, representing about 9,500 participant contact hours;
- o about 1% take the programmes for credit;
- o staffs of small rural and northern institutions form the majority of users.

ADMINISTRATION

- o a staff of 4 full-time, 3 part-time professionals and several support staff operate TFO, including network relations, promotion, materials distribution and programme development;
- o the individual responsibilities of the five founding faculties vis-à-vis TFO fall roughly into the areas of needs assessment, English or French language programming, evaluation and videopilot project development.

SOFTWARE DEVELOPMENT

- o varying approaches and processes are employed, depending on topic and format;
- o most presenters are from universities or major affiliated teaching hospitials and do live presentations from the local site;
- o programme development is based on ongoing evaluations, and is the responsibility of TFO;
- o how are credit courses developed, e.g., is it the academic faculty which adapts an on-campus course;
- o for single sessions, does TFO sit with presenter to identify support materials.

TRAINING

- o individualized for presenters who need familiarization with technology; includes a brochure and rehearsals.

FINANCING

- o a three-year grant from the Ministry of Health;
- o institutions pay a fee of $25 for each continuing education course they take;
- o participating universities absorb some of their facility and staff costs from their operating budgets.

THE FUTURE

- o expansion of credit course offerings, jointly with educational institutions.

SERVICES

- o consulting services, site co-ordinator training.

CONTACT

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Sponsoring Organization: **TELEVISION LANGUAGE TRAINING, INC., ONTARIO**

EDUCATIONAL MISSION

o to offer flexible and accessible language and settlement classes for immigrants.

COMMUNICATION TECHNOLOGIES

o distributes cable-TV programmes on two cable-TV community channels;
o uses telephone service for teacher-student contacts in their homes or place of work.

PROGRAMME OFFERINGS

o English as a second language and settlement courses offered over two semesters of 9 weeks each during fall/winter; plus an 18-week summer course.

EDUCATIONAL DELIVERY SYSTEM

o a workbook accompanies the TV course;
o teachers are usually bilingual in English and the student's mother tongue;
o a minimum of one weekly telephone appointment during which the teacher conducts a lesson based on the television programme, and the workbook lesson, and provides counselling;
o a drop-in resource centre offering access to a VCR, copies of the TV programmes and a tutor.

ENROLMENT

o 40 students are presently enrolled, declining from as many as 180 students, as the recent immigrant community is diminishing.

ADMINISTRATION

o a part-time co-ordinator is responsible for recruitment and enrolment of students and TV teachers, as well as for assistance to the telephone teachers, and for administrative tasks associated with the course.

SOFTWARE DEVELOPMENT

o produced with assistance from the community cable channels;
o based on refugee needs assessments.

TRAINING

o short seminar for teachers on how to conduct telephone lessons as well as on how to recruit students.

FINANCING

o access to the cable channel and studio facilities is free of charge;
o the Ottawa School Board is providing in-kind support including teachers and facilities;
o a minimal administrative fee is paid by students;
o a grant total of $18,000 from federal and provincial sources supports the project.

THE FUTURE

o production of quality series covering the beginner to intermediate levels of language instruction and a complete review of the life skills needed by the adult immigrant to North America;
o programme distribution across Canada on a commercial TV network;
o videotape viewing through libraries, immigrant centres, language schools and video rental shops.

SERVICES

o sale of programming and print packages domestically and internationally;
o training in video and language instruction.

CONTACT

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Sponsoring Organization: **ONTARIO EDUCATIONAL COMMUNICATIONS AUTHORITY (TVONTARIO)**

EDUCATIONAL MISSION

Established in 1970 as the Ontario Educational Communications Authority to:

- o acquire, produce and distribute programmes and materials in the educational broadcasting and communications fields;
- o to conduct research that contributes to the achievement of such objectives;
- o to produce and broadcast programming in English and French for all age groups and to satisfy changing learning needs;
- o to work with educational and other institutions in the provision and use of learning resources.

COMMUNICATION TECHNOLOGIES

- o uplinks TV programming from Toronto to the Anik-C satellite, leasing a 14/12 GHz RF channel from Telesat Canada. Redistribution of the signal is accomplished through more than 160 cable networks, over 20 medium and high power transmitters and, in 1986, approximately 185 low power rebroadcast transmitters being established in rural and remote communities throughout northern Ontario reach over 95% of the population of the province;
- o TVO operates a northern extension programme, through a combination of television receive antennas of 1.8 m diameter and low power rebroadcast transmitters;
- o operates the full range of TV production facilities in addition to renting equipment and facilities for large productions;
- o produces its own extensive print support materials;
- o conducted experimental Telidon field trials;
- o distributes by mail computer-based learning materials for elementary and secondary schools: these materials are produced for the Ministry of Education by independent contractors;
- o uses electronic mail in a bulletin board format accessible by micro and modem to complement a personal finance series for adult viewers; packaged basic software and documentation for a wide range of microcomputers in support of a series on microcomputers;
- o has used telephone tutoring for a few of the part-time learning programmes;
- o offers a computer-managed correspondence component for registrants in some of the programmes;
- o acquires appropriate rights and grants authority to schools and nonprofit educational institutions to tape some of the programming for off-air use and to establish video libraries; the materials can also be purchased.

PROGRAMME OFFERINGS

- o a total of 5,490 hours of TV programming in 1985 in all program categories, of which 17% is in French (average of 535 hours per month);

- o credit and non-credit telecourses offered by universities and colleges throughout the province. In the fall of 1985, TVO offered 16 telecourses, 10 of these are university credit courses; the courses consist of 10-30 TV segments of 30 minutes each. The 17 participating universities and colleges administer the credit and other academic support functions;
- o credit course offerings include photography, anatomy, astronomy, office automation, psychology, sociology, music, anthropology, religious studies, energy, and tourism;
- o adult part-time students have access to non-credit learning through Academies (i.e., short integrated learning packages) and courses on a wide range of topics that include micro-computers in education, modern China, contemporary Canadian art, and photography. These programs combine TV components, print support and, in some instances, a computer-managed learning component: approximately 400 hours of Academy programming is offered per year;
- o primary, junior, intermediate and senior school programming supports core components of the curriculum;
- o at present French language programming includes one hour a day for French language schools, several hours a week for general adult audiences and part-time students, including the Academy on micro-computers: about 10 programming hours are reserved each Sunday for viewers of all ages.

EDUCATIONAL DELIVERY SYSTEM

- o for credit courses, viewers register with the appropriate university or college: these institutions are responsible for learning support, including print materials, study guides, tutorial services and examinations;
- o students in part-time learning courses register with TVO and receive support ranging from viewer guides, to textbooks, to newsletters, to assessments of work samples or written assignments;
- o in-school programming is supported by teacher guides, student workbooks, flyers, as well as through workshops with teachers, librarians and community workers to assist good utilization of programming;
- o more than 4,400 television resource teachers have been trained throughout the province to assist their colleagues in using television as an effective teaching tool.

ENROLMENT

- o enrolment for credit courses is operated through educational institutions. In 1985, approximately 1400 students enrolled through the various institutions: 50% of community college instructors and 23% of university instructors use TVO programming in their courses;
- o enrolment for non-credit and part-time learning programmes reaches about 12,000 per year;
- o more than 35,000 teachers use TVO programming in their classrooms;
- o over 2.0 million viewers at home watch TVO for an average of 2.2 hours a week.

ADMINISTRATION

- o full-time staff of over 470, plus short-term contract employees organized into four divisions: Educational Telecommunications (107 staff); Corporate Development (98 staff); Finance and Operations (247 staff); and Executive (18 staff);
- o a staff of 12 operates and plans the technical distribution system throughout the province;
- o Academies and part-time learning and credit programmes comprise 19 staff, including producers.

SOFTWARE DEVELOPMENT

- o in the formal credit area, TVO will work in different modes, depending on the resources and expertise of the participating educational institutions, it will air programmes produced/purchased by the organization or it will take on production jointly with the credit-granting organization or it will co-ordinate programme acquisition with potential credit-granting organizations;
- o for the other areas of programming, TVO draws on a multi-disciplinary mix of in-house and contract staff.

TRAINING

- o utilization workshops, television resource teachers and a newsletter are the main tools to promote the effective use of television in schools, post-secondary institutions and the community.

FINANCING

- o base grants from the Ministry of Citizenship and Culture and the Ministry of Education in 1984-85 accounted for about $30 million, representing 70% of TVO's funding;
- o support for post-secondary credit courses was over $1 million from the Ministry of Colleges and Universities;
- o other sources of revenue are supplementary project-specific government grants, sale of programming and print materials, private and public underwriting, co-production, membership donations;
- o operating expenditures for the year 1984-85 totalled $43.5 million. Programming expenditures came to $25.2 million. This accounts for 58% of 1984-85's total expenditures. Broadcast distribution expenditures totalled $3.8 million.

THE FUTURE

- o establishment of a full French-language network to air in January 1987;
- o broadcast of weekly half-hour Native-language programmes to 27 native northern communities to be produced by a regional Native Communications Society.

SERVICES

o sale of video, print materials.

CONTACT

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Sponsoring Organization: **TORONTO INSTITUTE OF MEDICAL TECHNOLOGY (TIMT), OUTREACH DEPARTMENT, ONTARIO**

EDUCATIONAL MISSION

o to offer education for allied health professionals who are located in areas where on-campus access is difficult.

COMMUNICATION TECHNOLOGIES

o audioconferencing systems are either main teaching tools or support tools for correspondence courses;
o conferencing bridge services are leased from a service supplier (see Darome);
o a conference room at the Institute, equipped with microphones and speakers, is the main origination site;
o participants are responsible for their own reception facilities which could be telephone receiver or audioconferencing rooms at health facilities.

PROGRAMME OFFERINGS

o offers over 60 outreach courses with recently increased audioconferencing support;
o the first two fully audioconference-based courses are offered in 1985/86 and include a post-graduate level course on problem solving in the blood bank and a post-graduate course on technical quality assurance in histopathology;
o both courses have four one-hour teleconference sessions;
o five correspondence courses will receive audioconferencing support.

EDUCATIONAL DELIVERY SYSTEM

o teleconference students receive print materials, slides and specimen samples; practical exercises have to be completed by all students;
o instructors are available during conferencing sessions as well as by telephone if additional help is needed;
o all outreach students register through the mail;
o examination is organized through proctors.

ENROLMENT

o enrolment for the outreach department is over 1,000 students per year; enrolment in teleconference courses will be limited to 20 to allow for active participation by the student;
o completion rate for teleconferencing-based courses is expected to be in the range of 75%, as is achieved by other methods;
o participants from across the country register in the courses;
o students are practising professionals who take post-graduate courses to maintain membership in professional societies, often supported by the employer.

ADMINISTRATION

- o the outreach department's staff of seven is responsible for all distance education courses; this staff includes management, educators and a laboratory technologist to prepare practical course materials;
- o the art department, print shop, audio-visual services as well as academic faculty, assist distance education activities as part of their assignment or on contract.

SOFTWARE DEVELOPMENT

- o teleconference courses are adaptations of instructional modules developed for on-campus teaching;
- o the modules are written by instructors from an academic discipline or by outside consultants and undergo several peer reviews; module production is the responsibility of the instructional specialist;
- o evaluation feedback is integrated into future course development.

TRAINING

- o over an 18-month period, prior to initiating its own, TIMT participated in a variety of teleconference programmes as a learning tool for faculty.

FINANCING

- o the annual budget of the outreach department is $135,000 for program costs relating to correspondence and teleconference courses;
- o to date, course-related telecommunications expenses have been limited;
- o the overall costs for one of the post-graduate courses can be estimated at $2,000;
- o course fees are determined on the basis of the actual cost of course development and delivery.

THE FUTURE

- o significantly increased offering of audioconferencing courses as well as of tutorial support through audioconferencing;
- o investigation of slow-scan television and electrowriting equipment.

SERVICES

- o consultations and training in teleconference techniques;
- o site visits.

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Sponsoring Organization: **UNIVERSITY OF OTTAWA**

EDUCATIONAL MISSION

- o to offer a wide variety of courses to remote communities that otherwise would not have access to them;
- o to make the teaching of the best professors available to the off-campus centres;
- o to use a system which is simple to operate and which overcomes the isolation of distance students.

COMMUNICATION TECHNOLOGIES

- o telephone-based distance education has become the primary mode for distance education courses, both as a principal instructional tool as well as a support tool for TV and correspondence courses;
- o 25 off-campus centres are equipped with a loudspeaker and one microphone for every three students as well as with one or more television monitors to receive electrowriting or slow-scan television pictures. Several centres have electronic blackboards to originate materials;
- o at the University, four classrooms are equipped with a headset microphone for the instructor, with an electronic blackboard and with one mobile and one fixed position camera per classroom which originate the slow-scan TV materials;
- o the University operates two 20-part audioconference bridges, linking the centres on a dial-up basis. Individual sessions can include from 3 sites to 40 sites;
- o a typical system configuration operates one channel for audioconferencing and one channel shared between slow-scan TV and electrowriting;
- o the bridge operator also makes tapes of the lectures and transmits audio recordings;
- o access to two community cable services for TV distribution.

PROGRAMME OFFERINGS

- o over the past five academic years, 38 undergraduate and graduate credit courses have been offered in Social Sciences, Health Sciences, Administration, Education and Arts, and Electrical Engineering in either English or French;
- o the courses coincide with the University's academic year;
- o a B.Sc. programme in Nursing Science will be the first complete programme offered over the network, but it has not yet run its course. No other complete programme has been offered as yet via teleconference;
- o limited TV-based programmes primarily in the Arts;
- o a pan-Canada pilot project amoung five Francophone institutions share education courses;
- o professional development courses, seminars and general meetings bring the monthly use of the network to about 115 hours.

EDUCATIONAL DELIVERY SYSTEM

- o registration and admission to credit courses are the same as for on-campus students;
- o each off-campus centre has a contact person who handles registration and all other contacts with the group;
- o regular meetings are held in the communities to discuss student problems dealing with matters other than course content;
- o people from the registrar's office go to the centres once or twice a year to handle questions;
- o telephone counselling by the professors or with the department counselors is encouraged;
- o many courses incorporate video tapes, slides, films or overheads, which are mailed to the sites and shown by a local co-ordinator during the session on direction from the instructor;
- o all examinations are held simultaneously at all centres. A proctor is designated for each centre.

ENROLLMENT

- o since inception in 1981, over 1,500 students participated in credit courses;
- o completion rate is very high (95%) for the courses;
- o most students are adult and working locally (mostly female).

ADMINISTRATION

- o on the University campus, the distance education co-ordinator, with the help of an assistant and a secretary, is responsible for the whole network operations;
- o a co-ordinator responsible for all off-campus centres works closely with the teleconference office regarding course needs for the centres;
- o 2 centres are equipped with full-time staff who handle the teleconference duties as well as all duties related to on-site teaching. Other centres operate with student volunteers;
- o the School of Nursing has one person responsible for their distance education programme;
- o student volunteers from most of the centres take care of all the equipment. Professional organizations also help with the organization.

SOFTWARE DEVELOPMENT

- o courses are taught in front of a live classroom voiding the need for special or additional course preparation;
- o extra copies of course material are prepared and distributed to the remote sites prior to each week's course.

TRAINING

- o training of professors is done on a one-to-one basis by the distance education office and includes demonstrating and dry-runs with the equipment;

- o training for the students is through visits to the off-campus centres prior to the beginning of the sessions.

FINANCING

- o costs for 25 off-campus conference rooms, the University facilities and the two bridges is approximately $500 thousand;
- o long distance charges for 16 courses to 15 centres is approximately $53,000.

THE FUTURE

- o continued development of a network to serve Francophones in Ontario and the development of a pan-Canadian network of Francophone institutions;
- o continued expansion of complete programmes;
- o addition of a computer-based overhead projector to the system to enhance the system;
- o improved capabilities to share the graphics channel between slow-scan and electrowriting;
- o use of a computer-based integrated system which would include an electronic blackboard, an electronic overhead projector and an electronic viewgraph;
- o exploration of slow-scan TV transmission via blank intervals in full-motion TV broadcasts.

SERVICES

- o demonstrations and consulting.

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Sponsoring Organization: **UNIVERSITY OF WESTERN ONTARIO, FACULTY OF PART-TIME STUDIES AND INTERACTIVE HEALTH SERVICES, ONTARIO**

EDUCATIONAL MISSION

- o to provide adult students, through part-time studies, with the opportunity to participate in university credit-courses, on or off campus;
- o to use the resources of the University co-operatively through an interactive health system with professionals, in particular in health care, as well as with industrial groups and other sectors to maintain high-quality performance.

COMMUNICATION TECHNOLOGIES

- o a fully service-dedicated interactive video network supports health care delivery and professional development between the University's Health Sciences Department, three teaching hospitals and a general hospital some 35 miles from campus. Microwave facilities to the general hospital is leased from the telephone carrier, the remainder of the network from the local cable company;
- o each of the participating sites has basic video equipment consisting of a camera, several monitors and taping facilities, to facilitate and record live sessions;
- o a 20-port teleconferencing bridge, owned by the University, supports a number of full courses as well as occasional tutorials for part-time studies;
- o eleven audioconference sites are equipped with a loudspeaker and microphone. The originating site is based on campus, the students sites at University off-campus centres in 8 major communities in the region.

PROGRAMME OFFERINGS

- o the video facilities were built to provide psychiatric support to the general hospital but has increased in scope to offer up to ten hours per week of professional development as well as weekly psychiatric consultations;
- o the main methods for off-campus studies are by correspondence or by faculty travel;
- o the audioteleconferencing facilities have been in operation since 1982 and generally offer six credit courses per year, in areas such as English, psychology, nursing, social work and speech;
- o audioconferencing allows small groups of students to choose areas of study concentration which would not be available otherwise because of low numbers;
- o non-credit programs use audioconferencing courses sporadically, most notably in a banking management course.

EDUCATIONAL DELIVERY SYSTEM

- o registration for all off-campus part-time students is via mail after students have been accepted by the respective faculties. Special provisions exist for admission of mature students;
- o counselling, library research, study orientation and other support services are regularly offered on- and off-campus for all part-time students;
- o students receive print materials, textbooks and are assigned a course tutor to assist with study skills or academic problems;
- o at several remote sites the university works through industry or professional training facilities (e.g., police college) which make special arrangements for supporting the learners locally;
- o examinations can be taken at the teleconference site under proctor supervision;
- o no registration or examinations are required for the video health programmes. Health care staff participants in courses of particular interest to them.

ENROLMENT

- o about 2,100 students per academic session register for part-time studies. Of those, 80-100 participate in teleconference-based courses, in addition to correspondence students participating in teleconference tutorials;
- o completion rate of teleconference courses is well over 80%. Student reaction is positive toward this method of delivery.

ADMINISTRATION

- o the interactive video health network is administered by a part-time director, a co-ordinator at the University as well as by a technician at each site;
- o the audioconferencing network is placed within the part-time studies division and supervised by one full-time staff member who promotes use of the network and works with faculty or the correspondence co-ordinators to develop courses;
- o instructors are hired from within the University faculty.

SOFTWARE DEVELOPMENT

- o the audio course instructor is responsible for all aspects of course development, including the development of handouts. The courses taught over the network are similar to the on-campus courses and do not require significant adaptation;
- o interactive video programming is organized as lectures/discussions largely modelled after medical rounds. Orientation of the presenter is limited to a short introduction to the technology.

TRAINING

o promotional sessions introduce faculty to the systems and services;
o the conference co-ordinators assist;
o course instructors are oriented on an individual basis.

FINANCING

o the equipment for the interactive video network was financed through a grant by the provincial Ministry of Health. Annual transmission costs are in the order of 50,000 for the microwave link;
o the video network is used by a variety of groups which can access it by paying for technician time;
o the audioconferencing bridge and the conference room equipment were purchased by the University, so were headsets, tapes etc. Telephone line-charges for all sessions are absorbed by the faculty;
o income, in addition to the University's umbrella financing, comes from student fees and lease of facilities to professional organizations.

THE FUTURE

o establish a computer system providing networking capacity, bulletin boards and the capacity to integrate voice and computer networking into a teaching system;
o expand offerings to full diploma or certificate courses via teleconference.

SERVICES

o lease of bridging facility.

CONTACT

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Sponsoring Organization: **WILFRID LAURIER UNIVERSITY, TELECOLLEGE AND PART-TIME STUDIES AND CONTINUING EDUCATION, WATERLOO, ONTARIO**

EDUCATIONAL MISSION

Telecollege was established in 1978 with two pilot television programs. Part-time Studies, with production support from Telecollege Productions, provides credit courses to:

- o offer additional learning opportunities over TVOntario and to residents of cabled areas of Southern Ontario who cannot or do not wish to attend on-campus courses;
- o meet the changing lifestyles of part-time student by providing flexible study opportunities.

COMMUNICATION TECHNOLOGIES

- o television-based courses are sent by microwave or as tape to five major cable service areas, reaching up to 1 million households;
- o on-campus television production equipment is of professional broadcast quality;
- o a 10 port audioconferencing bridge presently links five community sites with the campus conferencing room for tutorial sessions and teaching. Conferences are established on a dial-up basis;
- o person-to-person telephone sessions between instructor and learners are part of the learning model.

PROGRAMME OFFERINGS

- o 20 different credit TV programs over three terms per year. Programs are aired on a 13 or 26 week period, normally coinciding with the regular university schedule;
- o six of the TV-based programs are produced by Telecollege, the remainder are TVO courses, offered for credit by the university;
- o TV course areas include sociology, economics, geography, business, anthropology, geology, philosophy, astronomy, fine arts, music, psychology, religion and culture, science, and social welfare;
- o 4 audioteleconference courses, one each in psychology, history, anthropology, and philosophy are offered over a 13-week period, in weekly sessions of 2-1/2 hours;
- o new courses are developed with the objective of developing full BA programs in sociology and psychology via Telecollege.

EDUCATIONAL DELIVERY SYSTEM

- o admission policy and registration process follow the same guidelines as for traditional part-time students;

- o each course is composed of the TV program, an extensive print-based learning package, including study guides and texts, in some instances audiotapes, a minimum of two personal telephone conversations between faculty and learner, two audioteleconferences per term, plus a toll-free number for academic or career counselling;
- o examinations can be written at a number of centres throughout the province.

ENROLMENT

- o during 3 terms in 1983, about 520 new or returning students, over 75% of which are female, over 40% in the 30 to 39 years age group and the large majority are employed full-time or part-time;
- o just over 10% of the students cite transportation problems as reason for enroling in Telecollege; preference to work at home and conflicting work schedules are the main reasons;
- o the completion rate is about 92%, the pass/fail rate is similar to that of other part-time students.

ADMINISTRATION

- o the office of Part-time Studies and Continuing Education provides the key administrative liaison for the students, handles inquiries, prepares and distributes materials and co-ordinates assignments and examinations. The staff of six in this office dedicates 15% of their activities towards the televideo courses;
- o the academic faculties are responsible for academic standards of the courses and assisting in the development of student resource materials and academic counselling;
- o Telecollege's staff of 4 produces or purchases the TV courseware.

SOFTWARE DEVELOPMENT

- o the content of the courses produced by Telecollege is similar to those offered on-campus by the University. They are reviewed every two years by a university committee;
- o TV course development is assisted by an academic advisory committee, both for content quality and for balance of text and resource materials;
- o about 30% of the course content is delivered via TV, the remainder through other components of the learning package;
- o programs consist of segments of video lectures, cases, interviews, graphics and, as well, teleconferences and/or review sessions;
- o TV programs remain valid over several years, with changes as necessary. Their quality allows faculty-hosts to take over programs without difficulty;
- o for the audioconference courses the lecturer has the responsibility for course content and, jointly with part-time learning, for print material support.

TRAINING

- o audioconferencing principles and techniques are offered for faculty.

FINANCING

- o the annual budgets of Telecollege and of the Part-time Learning office are about $500,000, about 15% of which goes toward support for the distance education courses;
- o production costs for TV courses are recovered through student fees and government funding over a 5-year period;
- o Telecollege generates a small surplus due to the smaller costs associated with some of the TVO programmes;
- o the costs of the audioconferencing operation and staffing, as well as telephone charges are recovered from student fees.

THE FUTURE

- o offer a full BA program via TV, likely in co-operation with other institutions;
- o expand and improve the delivery of the audioconferencing courses.

SERVICES

- o sale of learning packages;
- o site visits;
- o special training seminars.

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Sponsoring Organization: **CANAL, QUEBEC**

EDUCATIONAL MISSION

CANAL was founded in 1982 as a non-profit educational television organization for Quebec. The 12 members of its general assembly represent educational institutions. Its goals are:

- o to provide access to universities, colleges, school boards, credit courses and course enrichment material throughout the province;
- o to make the resources of Quebec's post-secondary educational institutions accessible throughout the province in credit or non-credit programmes;
- o to foster the understanding of educational television and new communication technologies.

COMMUNICATION TECHNOLOGIES

- o CANAL is a multi-method television distribution system, including 8 cable companies and 1 broadcaster;
- o programming originates in fixed or mobile studio arrangements at the participating post-secondary institutions;
- o the signal can be carried from the originating institution by cable to the local redistribution point operated by the cable company or a broadcaster;
- o the remainder of the participating distribution systems receive the signal through videotape distribution and occasional satellite networking;
- o viewers receive the signal at their home television sets through cable or broadcast reception;
- o student feedback is provided through dial access telephone to the university classroom;
- o videotapes of courses are made available in some public libraries.

PROGRAMME OFFERINGS

- o 8 participating educational organizations originate daily 24 hours of TV programming. 12 percent originate from Quebec City, and 85 percent from Montreal;
- o the programming represents 3800 hours of degree credit courses and 4900 hours of non-credit courses, over an academic year;
- o a series on the use of microcomputers is available for teachers;
- o programming includes support materials for correspondence courses and general information about events and activities at the universities and colleges.

EDUCATIONAL DELIVERY SYSTEM

- o through CANAL, the participating educational organizations have access to cable and broadcast channels; these organizations themselves are responsible for all student and learning activities, such as registration, materials and other learning support or examination.

EDUCATIONAL DELIVERY SYSTEM

o through CANAL, the participating educational organizations have access to cable and broadcast channels; these organizations themselves are responsible for all student and learning activities, such as registration, materials and other learning support or examination.

ENROLMENT

o over the academic year 1985/86, member organizations enrolled about 5000 students in degree credit courses;
o the system reaches 1.8 million households and 80 percent of the population of Quebec.

ADMINISTRATION

o three full-time staff members plan, promote, schedule and arrange the operation of the service under the direction of a part-time president, director general, executive administrator and the board, which is composed of all participating institutions;
o all activities related to programme services are the responsibility of the members.

SOFTWARE DEVELOPMENT

o under the responsibility of the members, whose approaches range from studio-based formal lectures to informal open discussions, often relying heavily on student input and questions by telephone.

TRAINING

o under the exclusive responsibility of the originating institution.

FINANCING

o CANAL has an annual operating budget of $100,000 covering salaries and office costs;
o access to cable and broadcasting facilities is free of charge;
o videotape circulation to member cable operators has an annual budget of $5,000;
o facility costs are absorbed by the members.

SERVICES

o consulting, training in distance-education techniques;
o site visits.

CONTACT

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Sponsoring Organization: **SOCIÉTÉ DE RADIO-TÉLÉVISION DU QUÉBEC, (RADIO-QUÉBEC)**

EDUCATIONAL MISSION

Established in 1968, as the provincial Educational Communications Authority to:

- o acquire, produce and distribute educational TV programmes for Quebec;
- o to offer educational programming for all age groups ranging from enrichment programmes for elementary schools to non-formal cultural and social programmes, to supporting programmes for degrees or continuing-education purposes;
- o to work co-operatively with other institutions to define and offer appropriate programming.

COMMUNICATION TECHNOLOGIES

- o operates 17 HF or VHF television transmitters and repeaters, reaching about 6 million viewers or 91% of the population of Quebec;
- o is carried on all cable TV systems in Quebec;
- o distributes TV programming to all the stations (except the one from Montreal) via the Anik-C satellite, leasing three 14/12 GHZ television transponders from Telesat Canada;
- o operates a full range of TV production facilities and makes use of independent production facilities;
- o has production facilities in nine regions, who originate between 30 minutes and 2 hours of their own regional programming;
- o grants authority to educational institutions to tape or reproduce programmes and to establish video libraries;
- o undertakes complete network operation and maintenance through its communication centre.

PROGRAMME OFFERINGS

- o the overall programme schedule is established on an annual basis with input from various educational sectors;
- o 80 hours and 30 minutes of TV programming per month of which 10 hours are in English;
- o over one third of the programming aired supports the formal education sector. Programming content depends on the Ministry of Education. It produces annually 555 hours of in-school programming. The community colleges and universities produce annually 376 hours of programming;
- o credit and non-credit telecourses offered during the academic year through the network include, per week: 4 hours from the Téléuniversité; 30 minutes from the École Nationale d'Administration Publique; 1 hour 30 minutes from Laval University; and one hour from the University of Montreal.

EDUCATIONAL DELIVERY SYSTEM

- o for university credit courses, viewers register with the appropriate university; these institutions are responsible for all learning and administrative support activities;
- o in-school programmes are supported with study guides and teacher guides which are prepared by the Ministry of Education;
- o the Ministry of Education registers viewers for adult education programs and provides learning guides.

ENROLMENT

- o enrolment for adult education programs has been up to 50,000 for a computer course;
- o enrolment in credit courses aired by Radio-Québec for different institutions is about 8,000 people annually;
- o in the fall of 1984, the network had about 2.5 million regular viewers.

ADMINISTRATION

- o a full-time staff of about 600, plus 200 short-term contract employees;
- o network operations employs 290, programming 190, administration and regional operations employs the remainder.

SOFTWARE DEVELOPMENT

- o in the formal university credit area, programme production is the exclusive responsibility of the credit-granting institution; most programming in this category is taped and reflects lecture styles.

TRAINING

- o for university credit programmes, all training is the responsibility of the credit-granting institution.

FINANCING

- o the annual operating budget is in the order of $60 million, with $10 million going towards the network operation and $37 million towards production;
- o educational institutions have access to the network free of charge, but they must cover their own production costs;
- o revenues are primarily derived from provincial appropriations and some revenues from the sale of programmes.

THE FUTURE

- o the pending integration of the provincial educational media responsibilities for in-school education within Radio-Québec will give the organization a more direct role in formal education;
- o increased co-operation in programming and production for adult education, with credit-granting institutions as well as with the private sector and the production industry and other sectors;
- o nation-wide extension of the network via satellite for viewers outside Quebec;
- o distribution of Radio-Québec programming through DBS operators.

SERVICES

- o sale of programmes.

CONTACT

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Sponsoring Organization: **TÉLÉ-UNIVERSITÉ, QUÉBEC**

EDUCATIONAL MISSION

- o created in 1972 as part of the Université du Québec system to provide, throughout the province of Quebec, university-level education through distance teaching methods to people who cannot attend traditional institutions;
- o has the authority to grant undergraduate degrees as well as diplomas and certificates and short, non-credit courses.

COMMUNICATION TECHNOLOGIES

- o course packages are primarily print-based, but they also include audio-cassettes, TV programmes, interactive television, electronic mail and computer services;
- o production facilities for print materials, audio tapes, teaching software and TV production exist internally;
- o TV programming is distributed via the CANAL educational network (see CANAL);
- o administrative and teaching computer software is used in a combination of stand-alone activities with real-time access to the central computer. Two central computers are accessed by about 500 microcomputers provided to students across the province; access to PLATO-based computer-assisted instruction is available as well;
- o work/learning sessions which require access to computer services are available on a limited basis, generally in geographic areas where a sufficient number of students justifies the investment in a facility;
- o teacher/student contact takes place via the public telephone network or the audioconferencing facilities of the Université du Québec;
- o live production of teaching sessions is practiced in some courses, using mobile TV equipment at the campus, the CANAL network, Radio-Québec or occasional leased facilities from the carrier;
- o a dedicated TV link connects the Quebec and Montreal centres on a closed-circuit basis, with 80% of the use accounting for management and 20% for teaching;
- o interactive television, videotext and videodiscs are being field-tested;
- o student registration and record administration is handled by the computer services of the Télé-Université.

PROGRAMME OFFERINGS

- o 60 credit courses are offered each session, three times a year. Twenty to twenty-five percent of these have a television component, all use an audioconferencing component and 15%-20% use computer-based teaching software. In the winter of 1985/86, 17 TV-based courses are broadcast, covering social sciences, management and computer sciences for education.

EDUCATIONAL DELIVERY SYSTEM

- o each student receives course materials for individual study, including print material, cassettes and, when appropriate, a TV viewing schedule for the provincial educational network. Where the student is not covered by this network, videotapes are provided;
- o each student or regional grouping of students is assigned a resource person from Télé-Université. This person organizes face-to-face work meetings, and collects, assesses and grades assignments;
- o in areas where student density is too low for personal contacts, telephone contact is encouraged and paid for by the Télé-Université;
- o Télé-Université at any time; September, January and May have proven to be the most active months, and the TV schedule is based on these as start-up months.

ENROLMENT

- o 28,000 course inscriptions or the equivalent of 2,400 full-time students are handled annually by the system. Two-thirds enroll to obtain a degree, the remainder are general-interest students;
- o 5,600 diplomas and 4,000 certificates were awarded between 1976 and 1985. Many programmes have only been offered the last few years, for which no degree completion rates are available as yet. The drop-out rate is less than 20%, including withdrawals;
- o the majority of the students are part-time, with number of males and females being about the same.

ADMINISTRATION

- o an in-house staff of 209 in total, including 27 full-time professors who develop programmes and courses and supervise student support and examination; over 20 full-time instructional specialists who assist in the course development; plus content specialists and editors hired on contract;
- o 500 carefully selected part-time resource staff hired on contract and located in different regions of the province provide direct linkage with the students;
- o a dozen trainers as well as over fifty management, administrative and clerical employees support the resource people and the student services;
- o access to CANAL and Radio-Québec transmission is scheduled on a 4-month basis.

SOFTWARE DEVELOPMENT

- o computer-based software is developed jointly by the professors and computer specialists and is produced by the latter. Seventeen courses are fully or partially based on computer teaching software;
- o Eighty percent of the TV programming is contracted out, 15% of programming is purchased, and the remainder is produced in-house.

TRAINING

- o resource people receive regularly-scheduled basic training in distance education, adult education and, at times, in the subject matter of a given course;
- o students receive their orientation to distance learning from the resource people and through study guides.

FINANCING

- o an annual budget of $15 million, of which 85% is provided by the province and 14% through student fees, 1% by revenue on sales;
- o membership in CANAL, which includes access to the delivery system, is $15,000;
- o major expense categories are teaching, support and research for $7 million; programme production, purchase and support for $3.8 million, including audio-conferencing and computer services. The remainder goes to administration.

THE FUTURE

- o expansion of the media-based course inventory for university education;
- o continued elaboration of the concept of an electronic university;
- o establishment of a degree programme on new communication technologies.

SERVICES

- o site visits;
- o full range of consulting services, including planning, implementation, training;
- o sale of programme packages.

CONTACT

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Sponsoring Organization: **UNIVERSITÉ DE MONTRÉAL, CENTRE AUDIOVISUEL, QUÉBEC**

EDUCATIONAL MISSION

- o to develop, co-ordinate and implement educational television projects jointly with academic faculties and departments.

COMMUNICATION TECHNOLOGIES

- o on-campus TV studios provide the facility for live programme production and for taping;
- o the programmes are distributed via CANAL (see description) or Radio-Québec (see description) and access the nearest cable system by direct cable link;
- o tape copies are available in the campus library and in eight municipal facilities in Montreal;
- o each course offers telephone links between student and instructor.

PROGRAMME OFFERINGS

- o eight introductory courses have been prepared in communications, religious sciences, astronomy, public relations, adult education, sociology, and geography;
- o each course is broadcast six times over a three-year span.

EDUCATIONAL DELIVERY SYSTEM

- o off-campus students register through the academic departments, following the same registration requirements as on-campus students;
- o students can call instructors at pre-determined hours for individual consultation;
- o each course is supported by print material, including a study guide and TV schedules.

ENROLMENT

- o no data are available to date on enrolment. The programmes can be viewed in most parts of the province, representing a potentially significant audience.

ADMINISTRATION

- o seven production and technical employees from the Centre are available to assist with the production and taping of the TV courses;
- o decisions on course content or presentation are exclusively made by the faculties. This includes the production and distribution of print material.

SOFTWARE DEVELOPMENT

- o the courses offered are very similar to on-campus courses in content;
- o TV programmes use two formats: discussions among two faculty members or among a faculty member and a number of students;
- o study material is produced specially for TV courses.

TRAINING

- o trained production personnel assists the faculty members to prepare themselves and their material for the camera.

FINANCING

- o production-staff costs and studio operations are covered by regular Centre funds;
- o the faculties assume all other costs, including staff costs, travel, or special material and productions.

THE FUTURE

- o continue to offer two new TV courses each year.

SERVICES

- o sale of existing TV courses;
- o none to date.

CONTACT

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Sponsoring Organization: **UNIVERSITÉ DU QUÉBEC, VICE PRESIDENCY FOR COMMUNICATION, QUEBEC CITY**

EDUCATIONAL MISSION

Created in 1968, now composed of 11 autonomous provincial universities and institutes, the University's mission is to:

- o increase opportunity for university education for the growing numbers of francophone graduates from colleges;
- o decentralize access to educational opportunities across the province;
- o facilitate access to university-level education of the adult student.

COMMUNICATION TECHNOLOGIES

- o fully dedicated telephone service among institutions, leased from carriers;
- o internal data network among all centres for administration, management, research and training;
- o computer network for retrieval acquisition, cataloguing and library loan processing. Services are increasingly used for research;
- o 15-port audioconferencing bridge service for all university constituents, mainly for administration;
- o occasional rental of TV conferencing capacity from the carrier for special seminars;
- o no dedicated rooms for audio or videoconferencing;
- o internal facsimile and telex service, primarily used for administration;
- o interconnection with a variety of international data networks and library access systems.

PROGRAMME OFFERINGS

- o the network is primarily used for administration among the member institutions of the University and for research support;
- o the occasional video service is being used for special seminars and for novel approaches to multiple-campus co-teaching.

EDUCATIONAL DELIVERY SYSTEM

- o overriding use of system is for administration and research, thus educational support activities are not at issue;
- o inter-campus teaching is used only on an experimental basis.

ADMINISTRATION

- o each member institution has its own network team, providing support to research, teaching and administration;
- o the vice president has 25 staff who support the total network use and work with carriers and other people who provide service.

ENROLMENT

- o the University of Quebec system has 25,000 full-time and 45,000 part-time students;
- o the telecommunication support system facilitates enrolment and tracking of part-time students in diverse regions of the province.

SOFTWARE DEVELOPMENT

- o for the occasional educational uses of the system, the sponsoring faculty is fully responsible.

TRAINING

- o handled at each campus.

FINANCING

- o the University system has an annual budget of about $240 million;
- o annual costs for the data network excluding staff is about $170,000;
- o annual cost for the telephone network, excluding staff is about $580,000;
- o each university is charged for its share of the use of the system, based on planned usage information.

THE FUTURE

- o continued participation in field trials, in particular in informatics;
- o greater emphasis to support co-operative research between professors on different campuses.

SERVICES

- o two vehicles exist: a university corporation which provides services on a cost basis, and cooperation agreements;
- o training, planning and implementation assistance is available as well as system design and procurement advice.

CONTACT

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Sponsoring Organization: **DR. EVERETT CHALMERS HOSPITAL**
NEW BRUNSWICK

EDUCATIONAL MISSION

The hospital initiated teleconferences in 1981 to:

- o assist hospital-based physicians in the region to obtain current information on new medical developments;
- o to promote nursing and multi-disciplinary continuing education.

COMMUNICATION TECHNOLOGIES

- o access to the audio conferencing system operated by the New Brunswick Hospital Association (see NBHA) which connects all hospitals in the region;
- o participating hospitals have microphones and loudspeakers. Up to 22 sites can participate in the network;
- o the number of participants varies with the location.

PROGRAMME OFFERINGS

- o one lecture per week for physicians and nurses;
- o the sessions cover a large variety of medical and health topics;
- o the courses for physicians are accredited for CME. The nursing sessions do not earn credit;
- o at the participating hospitals, one part-time staff member supports the sessions.

EDUCATIONAL DELIVERY SYSTEM

- o the lecture series are planned and published on a semester basis;
- o slides, hand-outs and overheads are distributed prior to each lecture;
- o at the local level the in service co-ordinator promotes the programmes, registers the people, collects written evaluations, makes sure slides/overheads are shown when required;
- o the physicians register for each session and a copy of the register is forwarded to the Medical Society for continuing medical-education credits.

ENROLMENT

- o all courses bring together the working staff of hospitals in the region for continuing education sessions;
- o approximately 100 physicians and 50 other health-care personnel participate in each session of the two programmes respectively. Another 50-60 physicians and 20-25 staff from the hospital attend sessions.

ADMINISTRATION

- o each of the two programmes are the part-time responsibility of one hospital staff member;
- o scheduling and preparation of the semester plan, as well as promotion of the programmes, are the responsibility of these two individuals;
- o the slides, overheads, and handouts are prepared by the speakers with the assistance of the Education Department, which assumes responsibility for finalizing and distributing the slides, handouts; etc.;
- o the lectures are presented by physicians, nurses, and pharmacists, i.e., resource people identified by the co-ordinator as excellent lecturers.

SOFTWARE DEVELOPMENT

- o both co-ordinators visit the participating hospitals once a year in order to identify learning needs and to plan the next semester;
- o session lecturers are well-known specialists in their field. The sessions alternate between didactic and case-study presentations. There is always the opportunity for "in-house" as well as "on-line" questions, regardless of the approach. The case studies are frequently presented by general practitioners. This approach is more conducive to discussion with on-line as well as in-house participants.

TRAINING

- o audioconferencing equipment and basic conferencing techniques are demonstrated to new lecturers.

FINANCING

- o the physician sessions are financed by the hospital;
- o the costs for the general health sessions, which are mostly telephone charges, are carried by the participating institutions;
- o material support costs are absorbed by the hospital but alternative methods of payments are being explored at this time.

THE FUTURE

- o increase services to health-care staff in the region by linking with other ongoing continuing education activities.

SERVICES

- o only occasional site and observation visits.

CONTACT

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Sponsoring Organization: **NEW BRUNSWICK HOSPITAL ASSOCIATION EDUCATION SERVICES**

EDUCATIONAL MISSION

- o to develop and provide educational programmes for hospital board members and personnel throughout New Brunswick;
- o to provide an alternative low-cost highly accessible education delivery system.

COMMUNICATION TECHNOLOGIES

- o a 22-port teleconference dial-in bridge is leased from the carrier by the Association and is available for programmes sponsored by the Association as well as by others;
- o any site can call into the bridge to participate;
- o hospitals and other participating sites are responsible for their own conferencing equipment, most rooms in the system feature one loudspeaker and four microphones;
- o telecommunication services are obtained from the telephone company on a dial-up basis.

PROGRAMME OFFERINGS

- o limited programme production by the Association, which uses the network primarily for meetings;
- o the system provides access for health-care staff to interactive health education programmes and courses offered by other institutions (e.g., see Memorial University);
- o at present 4 hours per week of system use is typical. Eighty-seven percent of this use is for administrative purposes.

EDUCATIONAL DELIVERY SYSTEM

- o participants assemble at designated locations in hospitals or health care centres;
- o slides and print materials are mailed;
- o registration often includes fee collection and is also managed by the Association for most courses which do not originate at the Association.

ADMINISTRATION

- o Sixty-four percent of the member institutions of the NBHA have teleconference site co-ordinators, who recruit participants, promote the programmes, ensure that facilities are booked, etc.;
- o at the NBHA, the education director identifies programmes of interest and arranges for participation of the member institutions.

ENROLMENT

- o programmes offered over the network address the learning needs of different levels and specialties of health-care workers;
- o enrolment for courses and sessions is handled by the NBHA or by the sponsoring organizations, thus no overall enrolment figures are available.

SOFTWARE DEVELOPMENT

- o the education division director identifies courses of interest to member institutions and matches them with available programming;
- o institutions that use the conference bridge for their own programmes are responsible for their own program development.

TRAINING

- o initial training for on site co-ordinators and NBHA staff was conducted by the telephone company.

FINANCING

- o bridge rental fee is $520 per month;
- o local sites pay for the convenor through rental or purchase, as well as for long-distance charges to the NBHA bridge in Fredericton, plus the registration fees for each programme;
- o staff costs are absorbed by the participating institutions.

THE FUTURE

- o to maximize use of the system, which is only in its first full year of operation.

SERVICES

- o none to date.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF MONCTON, CONTINUING EDUCATION DIVISION, NEW BRUNSWICK**

EDUCATIONAL MISSION

- o to provide university-level education to the french-speaking populations of the Maritimes;
- o to utilize communications technologies to improve access and opportunities for residents outside Moncton and for part-time students.

COMMUNICATION TECHNOLOGIES

- o trial and test courses have been conducted since 1984, using audio teleconferencing systems, electronic blackboards, computer-to-computer links, electronic mail service and satellite/cable based video-transmission with audio conferencing support;
- o Nine and one-half hours of audioconferencing and one hour of satellite/cable programming is provided per week; continuing tests and trials of the other technologies;
- o teleconferencing centres have been established at the university centres or affiliated sites;
- o the satellite/cable distributed programmes can be received by home viewers. Students taking courses for credits meet at reception centres equiped with audio-conferencing to follow-up on video programmes;
- o telephone lines, terminal equipment and the bridge are leased on demand from the telephone company;
- o the University, with the collaboration of each participating institution, sponsors the conference site and is responsible for its establishment and operation;
- o access to the satellite/cable network is via the Atlantic Satellite Network, with videotapes shipped directly to the uplink site;
- o studio facilities are fixed and include a classroom setting.

PROGRAMME OFFERINGS

All courses are for credit and lead to a certificate or a full degree.

Courses conducted include:

- o pedagogy of French as a second language, labour sociology, economics of co-operatives, economics of regional development, and gerontology.

EDUCATIONAL DELIVERY SYSTEM

- o distant course participants receive the same course materials as on-campus participants;
- o the distance education team offers administrative and technical support to recruitment of participants, technical supervision and other liaison;

- o registration procedures, student fees and admission for distance education courses are governed by the same rules that apply in the continuing education division;
- o student assignments are reviewed as often as those of on-campus students;
- o course examinations take place at each of the university centres and other participating centres;
- o student counselling is by phone or mail as well as on registration site.

ENROLMENT

- o enrolment typically ranges from 18 to 70 students per course;
- o students are mostly part-time. One course caters to full-time students;
- o withdrawals from courses have been minimal. The performance of distance students is at least as good as that of on-campus students.

ADMINISTRATION

- o within the continuing education division, a distance education team of five full-time people was set up for 1985 to initiate the programme;
- o communication, administration and technical expertise are represented on the team;
- o each participating centre has a member of the distance education team assigned to them for administrative and technical matters, constituting an important line between the student and the faculty;
- o teaching faculty are members of the University academic staff.

SOFTWARE DEVELOPMENT

- o individual courses are the responsibility of the course presenter with input from the team regarding teaching implications of the system used;
- o teaching faculty attempt to visit the participant sites to familiarize themselves with the participants and conditions;
- o audioteleconferencing courses are taught live, in front of an on-campus class and follow the established curriculum;
- o videocourses are taped in the studio in front of an on-campus class with a minimal amount of edited or pretested material;
- o student feedback is gathered at the distant site and is available for review by the teaching staff.

TRAINING

- o faculty orientation of the system encompasses media choices, familiarization with relevant literature as well as familiarization with the equipment, principles of materials preparation and audioconferencing techniques.

FINANCING

- o staff costs are covered by two grants totalling $135,000. The federal grants cover the period from April 1985 to September 1986;
- o equipment costs include $640 of rental fees per month. Equipment costing $6,000 was added to that already existing in the studio;
- o telephone service costs about $2,500 per semester;
- o access to the satellite network is provided free of charge;
- o the project office is developing different approaches under which the service could be self-financing through student fees and federal/provincial contributions.

THE FUTURE

- o continued assessment of new technologies and services, and, in particular, in narrow band technologies;
- o joint programmes with other francophone institutions are being explored.

SERVICES

- o consulting services to faculty;
- o training with the assistance of local expertise in communication and television production.

CONTACT

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Sponsoring Organization: **UNIVERSITY OF NEW BRUNSWICK, DEPARTMENT OF EXTENSION AND SUMMER SESSIONS, NEW BRUNSWICK**

EDUCATIONAL MISSION

- o to extend the academic resources of the University of New Brunswick to individuals throughout the province;
- o to provide opportunities for individuals to continue their university education through part-time study at home.

COMMUNICATION TECHNOLOGIES

- o audioconferencing, cable TV broadcast of existing tapes, audio-cassettes and print materials are used singly or in combination, depending on the session and course objectives;
- o fifteen high school or other community locations are equiped with portable conferencing equipment. Six university classrooms serve as origination points for audioconferences using portable equipment;
- o a seven-port teleconferencing bridge is leased from the provincial carrier;
- o supporting television programmes are distributed by a variety of methods, including satellite distribution on the Atlantic Satellite TV network, various cable TV systems, and a U.S. public broadcasting TV station;
- o the University has print and audio-cassette production capabilities, but buys or leases broadcast video materials.

PROGRAMME OFFERINGS

- o primarily degree-credit courses, varying annually, offered over the regular academic calendar;
- o audioconferencing courses have included biology, chemistry, physiology, literature, statistics, nursing, history and sociology;
- o television-supported courses have included astronomy, psychology and education;
- o on an annual basis approximately 300 hours of instructional audioconferencing and 40 hours of administration are conducted and 55 hours of TV programming are broadcast.

EDUCATIONAL DELIVERY SYSTEM

- o courses are open to any individual, regardless of whether or not the individual wishes to apply the credit to a degree program;
- o individuals register either through the instructor at the first organizational meeting (face-to-face session) in the community or by mail through the Department of Extension and Summer Sessions;
- o support services include university bookstore, university and local library assistance, academic advising by co-ordinator of Adult Learner Services, study skills tutorials, and financial assistance;

- o individual counselling or assignment review is either through the teleconference facilities or through regular telephone contact;
- o audioconferencing and TV-based courses are accompanied by specially prepared print materials;
- o students in TV-based courses have access to a course tutor by telephone;
- o examinations are taken at the off-campus centres under local proctors.

ENROLMENT

- o approximately 250-300 individuals enroll in courses offered via communications on an annual basis, 225 in the audioconferencing courses and 100 in the TV-based courses;
- o performance, as measured by tests and final grades received by students, for individuals taking degree-credit courses via telecommunications is as good as or better than those taking comparable courses via conventional delivery methods;
- o participants tend to be mostly females (60%) between the ages of 25-40 (80%) who are pursuing a first, undergraduate degree in Arts, Education or Nursing.

ADMINISTRATION

- o distance education courses and services are administered by the Department of Extension and Summer Sessions - a central, co-ordinating, academic, service department;
- o the distance education operations are managed by a co-ordinator of Distance Education with support from a co-ordinator of Adult Learner Services - for both people this is roughly 50% of their assigned duties;
- o volunteers from the off-campus classes serve as Local Teleconferencing Assistants to connect and dismantle equipment on-site and to distribute materials from instructors;
- o a secretary serves as a programme assistant to the instructors during evening class sessions.

SOFTWARE DEVELOPMENT

- o courses offered by audioconferencing are similar to those offered on-campus. Instruction is live from the classroom with a face-to-face class participating;
- o academic developments review and approve the leased video-based courses;
- o academic departments and instructors are responsible for the development and preparation of course content, course assignments, tests and examinations, and grading of student work;
- o Department of Extension and Summer Sessions is responsible for program/course planning, financing, technical arrangements, training/orientation of instructors to distance education and telecommunication equipment, surveys and assessment of courses;

TRAINING

- o reading and videotapes of audioteleconferenced courses, and simulations of teleteaching through workshops are main tools to introduce the faculty to teleteaching;
- o technical, instructional manuals are distributed to Local Teleconferencing Assistants;
- o course manuals for guided independent study courses are available for students.

FINANCING

- o the umbrella budget of the Extension Division is $2.1 million per year;
- o teleconferencing equipment inventory is approximately $25,000;
- o teleconferencing bridge charges are based on an hourly rate of use, adding approximately $3,200 per academic year;
- o personnel charges for programme development and administration are charged to Department of Extension and Summer Sessions, at about $50,000 per year;
- o instructors are paid a sessional stipend based on prevailing university rates for degree-credit courses, about $4,600 per 6 credit hour course;
- o access to TV distribution is free of charge, but programming is leased;
- o revenues come out of regular university appropriations. Special courses are occasionally developed on a cost recovery basis.

THE FUTURE

- o renovation of an auditorium on campus for videoconferencing receive only;
- o increased number and range of course offerings through the use of subdividable bridge and shared-user arrangement of equipment;
- o adoption of audiographic equipment to complement audioteleconferenced instruction.

SERVICES

- o consultation and training on teaching at a distance;
- o site visits.

CONTACT

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Sponsoring Organization: **ATLANTIC SCHOOL OF THEOLOGY, CONTINUING EDUCATION DEPARTMENT, NOVA SCOTIA**

EDUCATIONAL MISSION

- o to provide continuing education programming in the Atlantic region for clergy and lay persons;
- o to use communication technology to reach the client group in an efficient manner.

COMMUNICATION TECHNOLOGIES

- o about 2 hours of programmes produced on a monthly basis and distributed to cable systems from the DUET TV facilities (see DUET);
- o up to ten dedicated audio conferencing sites can participate in the sessions offered. These facilities are located in the parish offices or at health-care centres and are shared with other sponsors of audioconferences;
- o conference bridging services are leased from DUET.

PROGRAMME OFFERINGS

- o a non-credit continuing education course once a month over an eight-month period.

EDUCATIONAL DELIVERY SYSTEM

- o regional volunteer group co-ordinators organize locations, participants and lead local discussions after the lectures on the network are finished;
- o print study material are distributed as recommended by the instructor.

ENROLMENT

- o approximately 40 people, mostly clergy, participate in the sessions.

ADMINISTRATION

- o the continuing education director and the responsible faculty member produce the course with help from DUET production staff;
- o the audioconferencing system is operated by the telephone company without in-house staff support.

SOFTWARE DEVELOPMENT

- o responsibility for course development is part of the ongoing effort of the school's Continuing Education Department;
- o the programmes are live broadcasts with audio-based interaction between the presenter and participants.

TRAINING

- o the presenter receives a short introduction to distance-teaching techniques and to the actual equipment.

FINANCING

- o all staff costs are absorbed as part of ongoing university responsibilities;
- o studio costs are in the vicinity of $160 per hour. Access to the satellite/cable network is free. Audioconferencing services cost about $60 per session;
- o an external grant of $25,000 is expected to subsidize a three-year operational period.

THE FUTURE

- o extend reach to audiences throughout the Atlantic provinces.

SERVICES

- o site visits and discussions.

CONTACT

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Sponsoring Organization: **DALHOUSIE UNIVERSITY, DISTANCE EDUCATION & LEARNING TECHNOLOGIES, NOVA SCOTIA**

EDUCATIONAL MISSION

Formally established September 1985 to:

- o expand the role of Dalhousie University in the introduction of distance education and communications technologies to the region;
- o extend the only graduate nursing programme in the Maritimes to participants throughout the region.

COMMUNICATION TECHNOLOGIES

- o television distribution, using DUET studio and transmission network;
- o the majority of the courses offered use audioconferencing services, bridged by a ten-port, university-leased facility;
- o ten connecting lines are leased from the local telephone company;
- o the learner facilities consist of a single loudspeaker, microphones and access to cable TV.

PROGRAMME OFFERINGS

- o trial activities since 1983 have included non-credit and credit programmes for the Institute of Canadian Bankers, for the Municipal Administrators Program and for graduate-level nursing courses. A full graduate programme in nursing is available through distance education; some courses have campus-based components.

EDUCATIONAL DELIVERY SYSTEM

- o the programmes offered are primarily technology-based but strongly supported by printed documentation;
- o some of the courses/programmes require periodic on-campus presence by the participants;
- o student support, such as counselling and registration, is provided through regular faculty channels (including mail services, telephone discussions and personal visits to campus);
- o adequate library support is in some cases a condition to participate in a course;
- o course examinations are arranged through proctors in regional facilities.

ENROLMENT

- o enrolment in non-credit programmes was a total of 38 participants in 6 locations, for two courses with extremely high completion rates;
- o enrolment in three graduate-level credit courses was at nearly 50 participants in 4 locations with a completion rate of over 95%;
- o all of the participants are professionals taking the courses in order to advance in their field.

ADMINISTRATION

- o the Distance Education unit, staffed with one full-time director is part of the continuing education division;
- o support and assistance is drawn from existing university resources, such as A/V, Learning Resources, and Instructional Resources.

SOFTWARE DEVELOPMENT

- o courseware is currently based on existing courses and is adapted for distance delivery by the same faculty member who provides the on-campus course;
- o the Distance Education unit provides technical and instructional design advice and assistance, as well as administrative services.

TRAINING

- o conducted by the Distance Education Director and consists of orientation and familiarization sessions for groups and/or individuals;
- o includes preparation of guides, handbooks, policies and procedures for faculty and students.

FINANCING

- o current revenue is approximately $50,000 per year;
- o audioconferencing expenditures are approximately $15,000 per year;
- o use of DUET TV studio facilities costs $160 per hour; the transmission system is free of charge;
- o faculty members participate in the courses as part of their regular teaching load.

THE FUTURE

- o development and delivery of an increasing number of audioconferenced courses;
- o continued research and evaluation of video and data possibilities and their trial where possible;
- o collaboration with other institutions and organizations in the region in the development and co-ordination of distance education resources and possibilities.

SERVICES

- o co-ordination of resources for distance education such as technical, financial, human, equipment and remote sites;
- o training in all aspects of distance delivery;
- o consultation and selection of media (print, audio, video, data) for distance education;
- o instructional design.

CONTACT

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Sponsoring Organization: **MOUNT SAINT VINCENT UNIVERSITY, DISTANCE EDUCATION VIA TELEVISION (DUET), HALIFAX**

EDUCATIONAL MISSION

- o to enable university-level courses to be more readily accessible to people who may not otherwise have access to them;
- o to make use of communications technologies that are most widely available at home or at work.

COMMUNICATION TECHNOLOGIES

- o live, open broadcast television with simultaneous audioconferencing is the main vehicle to enable students to see and hear all relevant stimuli from the classroom and to provide their verbal input to the session;
- o use of cable and Anik-C Ku-band satellite transmission of roughly 130 hours per month permits wide regional distribution of the TV programming;
- o DUET provides access to an existing commercial TV uplink and has obtained free of charge, access to the local cable networks and to the satellite;
- o DUET owns and operates its own 10-port audioconferencing bridge;
- o programmes originate from a simple modified classroom which is enhanced with video and audioconferencing equipment, and allows the teacher to conduct a regular face-to-face class while transmitting the course to distant students.

PROGRAMME OFFERINGS

- o nine credit courses per semester are usually offered, and have included business, accounting, gerontology, history, psychology, children's studies, women's studies, home economics and humanities. In addition, Dalhousie University School of Nursing, and the Atlantic School of Theology are among the institutions which use the DUET network to offer some of their courses off-campus;
- o courses are offered during the academic year.

EDUCATIONAL DELIVERY SYSTEM

- o employers and communities set up receiving centres to encourage students to study in support groups; community libraries house extra resources for the courses. Video tape repeats are available for loan upon request;
- o academic advising is done by collect-call telephone. Telephone answering services are available to all registered students 24 hours a day;
- o registration is done by telephone;
- o community examination sites with proctors are set up as required;
- o information on courses, study methods and university procedures is part of the student guide;
- o in the academic year 1984-1985, 367 students enrolled;
- o all are over 25 years old and 90% are female;
- o evaluations indicate that performance is as good as or better than performance of on-campus students.

ENROLMENT

- o since DUET is new, the completion rate of programmes is not yet known. Drop-out rate is 18% across all courses .

ADMINISTRATION

- o a co-ordinator oversees all aspects of the programme;
- o one full-time and one part-time production assistant to ensure good technical quality of the production;
- o a scheduler;
- o secretary and various student workers to act as crew.

SOFTWARE DEVELOPMENT

- o faculty members are ultimately responsible for the courses;
- o the co-ordinator (instructional designer) consults with faculty on the needs of distance students;
- o the courses are offered live from face-to-face classrooms with some adaptation in teaching techniques for the network students;
- o supporting print materials for the distant students are generally the same as for on-campus students, with occasional adaptations for distant learning.

TRAINING

- o faculty undergo development workshops that instruct them on how to teach effectively using the technology, and how to support distance students in their classes;
- o faculty development workshops are held each semester, and include video-taped training sessions and simulations;
- o regular feedback sessions are held with faculty presently on DUET;
- o a manual on DUET technology, policies, and procedures is available;
- o distance learners receive print materials designed to help maximize their experience;
- o student workers are trained at the begining of each semester;
- o on-campus students receive introduction to DUET at the beginning of the semester and a bookmarker on how they can help distance students learn.

FINANCING

- o the annual budget is approximately $100,000;
- o a significant portion of the funds goes to the lease of the transmission system and to staff costs;
- o the sources of funds are student fees and government grants.

THE FUTURE

- o expansion to a full educational satellite channel serving the Atlantic Region of Canada;
- o more co-operative ventures with other universities;
- o increased enrolment and the offering of entire credit programmes on DUET.

SERVICES

- o site visits available by appointment;
- o workshops open to the public for a fee;
- o some videotapes are available for sale.

CONTACT

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Sponsoring Organization: **TECHNICAL UNIVERSITY OF NOVA SCOTIA**
CONTINUING EDUCATION DIVISION, NOVA SCOTIA

EDUCATIONAL MISSION

o to provide an opportunity for students and practising professionals to have access to the latest knowledge in areas of high technology through participation in satellite video conferences, organized by the Institute of Electrical and Electronic Engineers (I.E.E.E.).

COMMUNICATION TECHNOLOGIES

o TV reception of live satellite broadcasts and dial-access telephone links for questions;
o large screen TV projection in a meeting room at the university;
o portable satellite TV-receive antenna, rented for the day of the event;
o for audio feedback the regular telephone handset is used.

PROGRAMME OFFERINGS

o three sessions have been offered: Robotics, Design for Manufacturing, and Fibre Optics.

EDUCATIONAL DELIVERY SYSTEM

o the seminars run from 12 noon to 5 p.m. for the satellite portion;
o registration and speakers precede the event to provide background.

ENROLMENT

o average attendance is 12;
o participants are students and practising professionals.

ADMINISTRATION

o one co-ordinator for the day of the event;
o two part-time staff to organize and advertise the event and make reception arrangements.

SOFTWARE DEVELOPMENT

o local presentations are organized to augment the satellite programming;
o conference support materials include copies of graphics used in the satellite presentation.

TRAINING

o all details are provided by correspondence from I.E.E.E.;
o a conference call with local organizers precedes the event to finalize details.

FINANCING

o the expenses for an individual event are between $2,000 and $3,000;
o twenty or more participants must be attracted to make the programme viable.

THE FUTURE

o purchase of a TV-receive earth station;
o uplink and TV production facilities to generate continuing technical education courses.

SERVICES

o none available.

CONTACT

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Sponsoring Organization: **UNIVERSITY SAINTE-ANNE, CONTINUING EDUCATION PROGRAM, NOVA SCOTIA**

EDUCATIONAL MISSION

- o provide university-level education in French to Nova Scotians, including those who cannot attend the traditional institutions;
- o distance teaching methods to be initiated in 1986.

COMMUNICATION TECHNOLOGIES

- o TV distribution through the Atlantic Satellite Network to cable television systems throughout the region;
- o videotapes are aired from the uplink facilities;
- o videotapes are available for areas without cable reception;
- o print support materials and telephone contacts provide the student with further explanation and back-up.

PROGRAMME OFFERINGS

- o one credit course in social psychology and one seminar in French literature;
- o courses offered have the same content as on-campus courses but use different instructional methods.

EDUCATIONAL DELIVERY SYSTEM

- o students have tutors assigned whom they may call on a weekly basis to review assignments or examinations;
- o study materials are print only;
- o students may register by mail or phone;
- o instructional content is primarily based on the TV component and the print component provides support.

ENROLMENT

- o anticipated enrolment for the psychology course is 30 for 1986 and cannot yet be determined for the literature seminar;
- o the University Sainte-Anne expects to serve the French-speaking population of Nova Scotia, or about 12,000 people.

ADMINISTRATION

- o staffing for the production and execution of the courses is at present done by the staff of the continuing education division, the campus television studio and the academic departments.

SOFTWARE DEVELOPMENT

o the TV programmes were prepared by a team of specialists from the academic departments, continuing education and production;
o the telephone service will be used for follow-up discussion.

TRAINING

o no formal activities are now undertaken.

FINANCING

o staff and courseware development costs are absorbed by existing activities;
o access to the distribution network is free of charge;
o telephone charges are absorbed by Extension Services.

THE FUTURE

o production of a French reading and writing course for home-based students.

SERVICES

o none at present.

CONTACT

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Sponsoring Organization: **MEMORIAL UNIVERSITY, TELEMEDICINE CENTRE, NEWFOUNDLAND**

EDUCATIONAL MISSION

Memorial University, as the only university in the province, has shown a long commitment to:

- o making its advanced knowledge and research capability available to people in the remote areas of the province;
- o using modern technologies to service physicians, teachers, other professionals and the population at large, in order to provide access to and opportunities for education. In pursuing these objectives the University has actively explored communication technologies since the early 1970s.

COMMUNICATION TECHNOLOGIES

- o the Telemedicine Centre operates an audioconferencing system, augmented at some sites with equipment for medical data transmission, such as slow scan TV, ECG and EEG as well as telewriters for teaching;
- o the network consists of four dedicated regional circuits throughout the province as well as 16 dedicated locations nearer to the centre. There are a total of 95 sites in 54 communities on the 4 wire-dedicated network. In addition, there are 4 dial-access lines which permit inclusion of resource people or access to other networks;
- o the overall network is provided by the telephone carrier. The operation and maintenance of the end equipment is the responsibility of the University;
- o each site, typically at a hospital, vocational school, nursing clinic or town hall has at least two rooms equipped to serve as a conferencing room in order to facilitate room availablity;
- o a conferencing room typically is equipped with 4 microphones, 1 loudspeaker, etc., various larger hospital centres also have EEG, EEG and SSTV units and telewriters. A number of vocational schools have telewriters for credit courses;
- o up to 4 programmes can go on simultaneously;
- o the mix of communication technologies employed and their emphasis varies from course to course and include conferencing, print-based correspondence and videotape support. (Broadcasters and cable companies air videotapes, learning centres have videotape libraries and home VCR users have access to videocassettes.)

PROGRAMME OFFERINGS

- o from September to May, the network is used for about 15 hours a day;
- o the Centre's network is used primarily by health groups and agencies, the Faculty of Medicine and the School of Continuing Studies, offering credit, non-credit and certificate courses, and various government departments;
- o health programmes are primarily in the areas of continuing and in-service education, with the only credit courses in the health field being nursing education. Mini-series, or single sessions on a given topic, are the rule;

- o the School of Continuing Studies uses the network primarily for credit courses (of a 13-week duration). Over 20 of such courses are typically covered per semester, including education, English, business, mathematics, nursing, psychology with education providing the large majority of the courses;
- o the University Extension Service has also been a network user with courses focused on personnel management, administration, finance, accounting and criminology;
- o students in off-campus credit programmes have the same entrance requirements as part-time on-campus students. Many part-time students are mature students.

EDUCATIONAL DELIVERY SYSTEM

- o each group using the network is responsible for developing content, producing and distributing support materials;
- o participants for all programmes come to predetermined conferencing facilities, organized, in the case of continuing education, by a student monitor. Each site has a staff person assigned to this task;
- o continuing education students register through the school's regional offices. Exams are sent to all sites and are administered by proctors through the regional offices;
- o professors maintain teleconference-student office hours and stand by their phones to council and tutor individual students.

ENROLMENT

- o participation in health education programmes tend to vary greatly depending on target audience and topic. The participants represent a wide variety of health-care personnel in the province;
- o continuing studies offer, on an annual basis, over 90 courses and enrolls over 3,300 students. Among these, teleconference-based courses account for over 1/3 and for just under 1/3 of the number of participants.

ADMINISTRATION

- o the Telemedicine Centre has seven staff members (manager, technical supervisor, operators, co-ordinators and secretary) and 4 part-time operators;
- o at each site, one part-time co-ordinator serves as a contact person and handles all local administrative and technical matters;
- o the Telemedicine Centre administers the overall network.

SOFTWARE DEVELOPMENT

- o all network users are responsible for their own software development as well as for the provision of support materials;
- o typically, teaching faculty will be supported by the university's A/V or print facilities, and instructional design support, which also co-ordinate schedules and materials distribution;
- o the credit courses offered have the same content as on-campus courses but are designed for appropriate distance delivery methods;

o the Centre briefs all presenters on audioconferencing techniques and provides additional assistance as requested.

TRAINING

o through its many years of operation, the Centre has developed a series of training approaches for different participants, including lecturers, learners, and co-ordinators;
o training includes hands-on technical training, programme production principles, and administrative implications;
o training is conducted in face-to-face meetings.

FINANCING

o about 55% of the budget goes to the network lease, 30% to staff and the remainder to travel, hardware replacement, etc.;
o the network is financially supported through fees charged to the users.

THE FUTURE

o expand the availability of supplementary end equipment to a larger number of sites;
o increase the capacity of the network to the most heavily used sites;
o increase collaboration with other service providers.

SERVICES

o project planning and implementation assistance for telemedicine projects is presently tested at the Centre and East African hospitals and by an Antarctic survey team.

CONTACTS

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Sponsoring Organization: **CANADIAN TELECONFERENCE NETWORK INC. (CTN) ONTARIO**

MANDATE

CTN provides a complete range of services for multi-point video-teleconferencing. CTN works with clients to determine if and how video-teleconferencing might be applied and the approximate cost. These can be either temporary or permanent facilities within a multi-site network to:

- o develop specific plans and cost estimates for a teleconference or a network;
- o provide the necessary telecommunications links, equipment, personnel and TV production supervision in connection with the actual event.

COMMUNICATION TECHNOLOGIES

- o primarily satellite-based from a single site to multiple sites in Canada, the U.S. or around the world;
- o principal format is one-way video (full bandwidth), two-way audio (interactive);
- o primary receiving format is by transportable satellite-receiving antennae (TVRO) with back-up electronic support and a trained satellite technician on site;
- o usually large-screen projection (6' X 8' or larger) at participating sites backed up with an equivalent unit and managed by a trained projection technician;
- o audio return from sites by standard dedicated business line, "bridged" at origination site using a specially designed matrix and managed by a specialized audio professional;
- o origination site production using standard broadcast quality mobile production truck;
- o local loops, backhauls and satellites rented from Telecom Canada on an occasional-use basis;
- o network management, control and trouble-shooting provided by CTN either from the origination site or its Toronto offices;
- o scrambling/descrambling features available on request.

PROGRAMME OFFERINGS

- o programmes are generated by the sponsors, with CTN working closely with the client to ensure correct television format;
- o over 60% of the programmes facilitated by CTN are of an educational nature with the legal, pharmaceutical and medical areas representing the large majority. Corporate training in sales and new product promotion makes up the remainder of educational activities. By January 1986, CTN had facilitated over half a million of participant contact hours.

EDUCATIONAL DELIVERY SYSTEM

- o the client sponsors are responsible for all support activities including the development of supplementary materials, the promotion of the programme and any other follow-up work;

- o most programmes are accompanied by course or programme materials at each site, generated by the national sponsor or local host;
- o registration is handled by the national or local sponsor.

ENROLMENT

- o conduct several video-teleconferences per month averaging approximately 100 participants per site;
- o estimated over 50,000 attendees at Canadian sites in 1985.

ADMINISTRATION

- o a Canadian staff of 5 plus numerous people under contract.

SOFTWARE DEVELOPMENT

- o is the responsibility of the client, but the client is supported with materials on teleconferencing, applications and model programmes.

TRAINING

- o is primarily the responsibility of the client, but CTN's producer/director and staff work with the client to develop a successful programme.

FINANCING

- o most programme sponsors bear costs directly, some require a registration fee which can range to a maximum of $425 for a two-day course;
- o most programmes are seen by the client as an operating expense since they present in-house training or product promotion while some generate profits from registration fees.

THE FUTURE

- o strong growth anticipated for point-to-multipoint ad hoc video-teleconferences;
- o strong emergence of permanent, private network facilities.

SERVICES

- o multipoint video-teleconferencing on an ad hoc basis;
- o design, installation, management and maintenance of permanent multipoint networks.

CONTACT

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Sponsoring Organization: **CONTINENTAL BANK OF CANADA, CONTINENTAL INSTITUTE**

EDUCATIONAL MISSION

o to provide an organized framework of courses, seminars and comprehensive programmes for all career levels within the bank. Video-based training and computer-assisted instruction facilitate self-administered, self-paced instruction which is motivational and interesting, requires minimum involvement of coach/facilitator and ensures consistency of delivery and availability in the bank's 60 locations across Canada.

COMMUNICATION TECHNOLOGIES

o video units are on mobile carts that allow use in a variety of locations within each branch;
o off-line microcomputers in each bank branch are available part-time for computer-based training;
o the mainframe computer hosts some computer-based training on a time-sharing basis.

PROGRAMME OFFERINGS

o in-service skills training for entrance, intermediate and advanced level Continental staff;
o programme units fall into the areas of management, credit, marketing, and operations;
o all course units count towards credit within the bank's internal system, and some are eligible for credit through Ryerson Polytechnical Institute.

EDUCATIONAL DELIVERY SYSTEM

o admission to individual courses must be supported by the staff supervisor and is part of employee's career-plan profile;
o studends receive workbooks that are closely integrated with video-based or computer-based training;
o the learners receive support, when required, from a designated Institute representative in each branch;
o each course includes a final questionnaire evaluation of the employee that must be completed before credit will be awarded.

ENROLMENT

o in two years of operation, nearly all of the bank's 1,800 employees have completed one or more programmes;
o over 4,000 credits had been awarded and there are over 2,200 current course registrations (1986);
o course selection is based on individual employee career plans.

ADMINISTRATION

- o a staff of 10 at the Institute manages curriculum development and handles some staff training through seminars, workshops and external courses;
- o instructional design and media/delivery system specialists support subject matter specialists from the credit, operations, marketing/client relations and management development areas;
- o the Institute provides all administrative and learning support, including registration, credit awards and maintenance of employee training profiles.

SOFTWARE DEVELOPMENT

- o development teams in the Institute include the skill area content specialist, the instructional design specialist, the media/system specialist and support staff;
- o course development reflects the needs of the bank's offices and is based on ongoing assessments;
- o line personnel from operating divisions of the bank often participate in project teams to develop and/or deliver courses.

TRAINING

- o Institute representatives from the branches meet annually for orientation.

FINANCING

- o not available, as it is confidential.

THE FUTURE

- o a pilot project using interactive videodisk to teach credit interviewing skills is under development for 1986.

SERVICES

- o sales of courseware outside Canada.

CONTACT

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Sponsoring Organization: **DAROME, TORONTO, ONTARIO**

MANDATE

The Darome group was incorporated in Canada in 1984. It sells audioconferencing services and audioterminal equipment as well as a full range of services needed by an organization to implement audioconferencing.

COMMUNICATION TECHNOLOGIES

- o specializes in audio technology, but its products are designed to be compatible with a wide range of audio-plus or audio-graphics devices, and to provide the audio portion of video conferencing;
- o designs, manufactures and sells its own line of speakerphones with quasi-duplex features as well as conferencing bridges of either 10-line or 20-line capacity. The former can be interconnected to virtually any telephone handset, and the latter to standard voice-grade phone lines. Speakerphones and bridges have been specially developed to enhance the audio quality of satellite systems;
- o links a maximum of 80 sites with additional capacity being added as the demand grows. Canadian operations are complemented by facilities in the United States and the United Kingdom, bringing its total capacity on international conferences to well over 600 lines;
- o reception facilities are provided by the sponsoring organizations or by Darome if the sponsoring organizations does not have its own facilities;
- o tape recording on audiocassette or dictation tapes are available.

PROGRAMME OFFERINGS

- o offers a regular complimentary introductory teleconference;
- o Darome audioconferencing clients include corporations, government agencies, health and education associations. These clients use Darome technology and services to offer their own individual programming. Training, university credit and university continuing education represent the largest block of services with over 50% of total hours used.

EDUCATIONAL DELIVERY SYSTEM

- o client organizations plan and organize their own student and other support activities.

ENROLMENT

- o conducts over 1,200 teleconferences per month on its combined Canadian, American and British offices: over 200 of these are exclusively Canadian.

ADMINISTRATION

- o a Canadian staff of approximately 10;
- o this group undertakes marketing, service planning, assists in the preparation of programmes and operates the technical facilities.

SOFTWARE DEVELOPMENT

- o is the responsibility of the client, but the client is supported with materials on teleconferencing techniques.

TRAINING

- o customer support service relative to the identification of audio conferencing applications, training users on teleconference techniques, and equipment training.

FINANCING

- o a price list for both Darome's equipment and service can be obtained from its office;
- o Darome's service charges include bridge access, planning and implementation support and a variety of other special features;
- o users typically dial into the bridge and pay their own toll charges.

THE FUTURE

- o service expansion in audio, audio plus and the audio support for video conferencing.

SERVICES

- o training;
- o equipment.

CONTACT

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Sponsoring Organization: **TELECOM CANADA, TRAINING SECTION**

MANDATE

Telecom Canada is the umbrella organization of ten of Canada's major telecommunications carriers and provides coast-to-coast voice, data and image telecommunications services. The organization uses telecommunication to support training within the member institutions. It also sells its facilities and services to outside clients for training, education or any other purposes.

COMMUNICATION TECHNOLOGIES

- o owns and operates audioconference facilities and services for internal purposes and sells the service to customers;
- o offers various packages of audioconference facilities including bridging, origination, and reception plus transmission services, depending on the customer's own range of capabilities;
- o offers audio plus capabilities which include slow-scan TV for 8 members, Telidon for all and electronic blackboard for one;
- o offers videoconferencing in a fully interactive mode between any two permanent studio facilities including Toronto and Montreal;
- o offers videoconferencing as a combined one-way video, plus audioconferencing services.

PROGRAMME OFFERINGS

- o offers regular staff-training sessions by and for the member companies;
- o outside clients range from health service organizations to the petroleum industries, who are responsible for the content of the sessions.

EDUCATIONAL DELIVERY SYSTEM

- o member company courses typically link an instructor with a number of facilities, where a tutor is assigned to work with the local learner;
- o client organizations are responsible for their own educational support activities, with some guidance from the Section.

ENROLMENT

- o no details are available on participation in courses.

ADMINISTRATION

- o the training section of Telecom Canada is responsible for planning and running training sessions;
- o the technical system and facilities are operated by the carriers as part of their overall service provisions;

o the training section is one of the divisions within Telecom Canada which works with the outside customers to promote the use or to plan and implement sessions.

SOFTWARE DEVELOPMENT

o in-house programmes are developed by the training section;
o instructors report a typical increase of preparation time by 150% compared to face-to-face sessions;
o special print materials and videotapes are part of the training package;
o customers are responsible for their own software development.

TRAINING

o customers, as well as in-house instructors, receive training in teaching techniques.

FINANCING

o a price list for services and equipment for external customers is available.

THE FUTURE

o continued exploration of new technologies and new services.

SERVICES

o training;
o rental of facilities.

CONTACT

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Sponsoring Organization: **DEVELOPING COUNTRIES FARM RADIO NETWORK (DCFRN)**

EDUCATIONAL MISSION

- to provide information packages for rural communicators in developing countries.

COMMUNICATION TECHNOLOGIES

- scripts with illustrations and audiocassettes are developed in Canada and mailed to developing countries where they are interpreted in the local language and adapted to local conditions. The information is then communicated by radio, in print or by other means, to small-scale village level farmers.

PROGRAMME OFFERINGS

- 133 information items have been prepared so far. They deal with simple and practical farming techniques and hints on better health and nutrition, most of which were pioneered in developing countries themselves.

EDUCATIONAL DELIVERY SYSTEM

- participants in the Network include agricultural broadcasters, journalists, staff of Ministries of Agriculture and others who communicate directly with rural people;
- each DCFRN information package includes illustrated transcripts, a cassette of required materials and a newsletter which gives suggestions for effective use of the materials;
- in order to remain in the network, participants are required to regularly respond to a questionnaire and are encouraged to contribute information for later distribution to other participants.

ENROLMENT

- DCFRN material is mailed to over 600 network participants;
- the ultimate audience for information communicated by radio alone is an estimated 100 million farmers in 100 developing countries.

ADMINISTRATION

- in Canada, the staff consists of seven full-time and two to three part-time members and a number of volunteers; with administrative responsibility at the University of Guelph and support from Massey Ferguson Limited and the Canadian International Development Agency;
- in 1986, the organization will obtain status of a non-governmental organization.

SOFTWARE DEVELOPMENT

- o topics are chosen from suggestions provided from the field, from examples submitted from various parts of the world and from site visits;
- o scripts and materials are developed by the project team and are available in English, French, and Spanish;
- o each network participant is responsible for adapting the materials to fit local priorities and conditions and the information is frequently re-used;
- o materials are interpreted in at least 120 languages and dialects; the total number is not known.

TRAINING

- o the information packages include hints on how to make good use of the materials.

FINANCING

- o the annual umbrella budget, including in-kind contributions, is about $400,000;
- o cash value of contributions overseas, e.g., airtime, materials adaption, is in the order of $330,000 per annum.

THE FUTURE

- o increase the health-related component of the material;
- o increase the number of languages of distributed material.

SERVICES

- o provide educational materials and consulting.

CONTACT

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Section B: Experiments and Pilot Projects

Canadian educators have been experimenting with communications technologies to help them better serve emerging clients, learners in remote and rural areas and urban dwellers with full-time jobs or family commitments who can not have access to on-campus education, as well as to assist smaller regional institutions in offering more diverse and quality education to local learners.

Partners in these experiments included provincial and federal government departments, and telephone companies or cable carriers who make their products and services available to educators for trial and exploration projects. In this review, while identifying some of the key projects, we must apologize in advance for not being able to include all of the participants. The projects we do deal with are some of the experimental satellite applications and the Telidon videotex/teletext field trials, along with the few additional programmes which we were able to discover.

1) Satellite Projects

Many educational institutions availed themselves of the opportunities for experimentation and field trials which were offered through the Hermes and Anik-B satellite programmes of the Department of Communications. Over 100 large and small projects were carried out over the last ten years. The types of projects implemented shows a growth and awareness by the content providers and the service providers in two key areas; first in the awareness of the different roles that satellite communication can play in instructional applications; and second, in the knowledge of institutional, financial and technical parameters upon which these services have to be based.

We have seen early projects transferred from experimental to pilot to operational projects. Thus, some of the experimental projects discussed here in summary form also appear in the main body of the Sourcebook as active projects.

Early involvement in experimental projects also helped telecommunications carriers to develop service offerings which are today technically and financially within the reach and means of educational institutions. For example, Telesat's applications programme is very encouraging both from the point of view of rate structures and because the educational community is now part and parcel of the client base which the company is developing. Along the same lines, the Atlantic Satellite Network provides a minimum of 20 hours per week for educational institutions free-of-charge.

Early projects include:

a) INSTITUTION: - Consortium of institutions and the KNOW Network in British Columbia

TECHNOLOGY:
- Hermes and Anik-B satellite experiments and field trials, using one-way television and interactive audio service
- Uplinked from one site near Vancouver
- Reception points were classrooms at community colleges throughout the province as well as cabled households

PROGRAMME AREAS:
- Several universities, institutes and colleges in British Colombia provided live lectures, sessions and programmes in areas such as health care, career and professional education, or forest fire prevention
- The trials generated continued interest in interactive and satellite technology for distance education in the province

b) INSTITUTION: - Access Alberta

TECHNOLOGY:
- TV distribution via Anik-B to a number of colleges and to seven cable systems in Alberta
- Terrestrial telephone lines facilitate discussions between students and instructors
- The trials encouraged the establishment of an operation satellite service

PROGRAMME AREAS: - General adult education as well as continuing professional education

c) INSTITUTION: - TV Ontario

TECHNOLOGY:
- Hermes and Anik-B field trials, using one-way TV and interactive audio services
- TV programming uplinked from Toronto, with four northern Ontario school sites as reception points
- The satellite trials developed into an operational service

PROGRAMME AREAS:
- Special intensive professional development "Academies" to assess educational systems models for adult students including TV, audioconferencing, and print support materials
- TVOntario offers Teleacademics as part of the operational service

d) INSTITUTION: - Quebec Department of Education, Kativik School Board

TECHNOLOGY:
- Anik-B field trials, using one-way video and interactive audio services to link five communities in northern Quebec
- Reception points were community facilities

PROGRAMME AREAS: - General curriculum enrichment and support for Native schools

e) INSTITUTION: - Memorial University

TECHNOLOGY:
- Hermes and Anik-B field trials
- The Hermes project used one-way TV from the University Health Centre in St. John's and interactive audio
- The Anik-B field trials used interactive audio plus slow-scan TV support
- Reception sites were at small regional hospitals

PROGRAMME AREAS:
- Continuing medical and nursing education for practitioners in distant areas of the province
- This project developed into an operational service

2) Telidon Videotex/Teletext Applications to Education

Telidon was publicly demonstrated on August 15, 1978, when the Department of Communications (DOC) announced the second-generation alphageometric Picture Description Instructions protocols, which came to be called "Telidon," an advance on the first-generation British "Viewdata" and French "Antiope" alphamosaic systems.

DOC supported a six-year two-phase programme of research and development, field and market-trials, and content development.

Phase One, 1979-83:

- General technology transfer
- Field and market trials
- Industry Investment Stimulation Programme (IISP)
- Public Initiatives Programme (PIP)
- Research and development at DOC's Communications Research Centre
- Behavioural and human interaction at DOC headquarters
- Telidon Marketing Secretariat (TMS) at External Affairs
- the Canadian Videotex Consultative Committee (CVCC), with six sub-committees, including education

Phase Two, 1983-85:

- International marketing
- Enhanced Telidon research and development
- Industry co-operation
- Government use of Telidon

In neither phase was there specific instructional applications support, despite the 1982 CVCC Educational Sub-Committee recommendations of:

- support for research on the impact of new technology on education and information,
- support for education-related content development, and
- development of open networks for educational purposes.

Over the years, Telidon's instructional potential has continued to be regularly addressed both within DOC and by outside industrial and academic experts, including the Interprovincial Association for Telidon and Tele-matics (IPATT), which donned both the mantle of the CVCC Educational Sub-Committee and its goal of establishing a learning and reference network. Nevertheless, relatively few projects targetted on learning appeared in the field trials, the IISP, the PIP or the Cultural Initiatives Program (CIP) (a separate DOC program that provides grants for certain culture-related endeavours).

While the CVCC Educational Sub-Committee made an important contribution to Telidon activities from 1979 to 1982, it is difficult to discern specific impacts on the growing Telidon industry, which is essentially concerned with developing hardware and software for international and domestic commercial markets.

The following twenty examples of instructional applications of Telidon are drawn from the materials supplied by organizations who responded to the survey, DOC reports and papers, archival records, publications and other reports.

BRITISH COLUMBIA

INSTITUTIONAL TRIAL SITE: Adaptive Testing Network
SPONSORING ORGANIZATION: British Columbia Motor Vehicle Department
COMMUNICATION TECHNOLOGY: Videotex
PROGRAM OFFERING: Driver Training Test
CONTACT:
Rex Schofield
Adaptive Testing Network
4400 Dominion Street
Burnaby, B.C.
V5G 4G4
Tel. (604) 438-5538

INSTITUTIONAL TRIAL SITE: Art, Sciences and Technology Centre, Vancouver
SPONSORING ORGANIZATION: Art, Sciences and Technology Centre, Vancouver
COMMUNICATION TECHNOLOGY: Videotex
PROGRAM OFFERING: Elementary Schools, Centre's Display
CONTACT:
Gary Brookfield
Art, Sciences and Technology Centre
600 Granville Street
Vancouver, B.C.
V6C 1Y9
Tel. (604) 687-8414

INSTITUTIONAL TRIAL SITE: Open Learning Institute, Vancouver
SPONSORING ORGANIZATION:
University of British Columbia
Simon Fraser University
University of Victoria
Knowledge Network
Government of British Columbia
BC Tel
COMMUNICATION TECHNOLOGY: Videotex
PROGRAM OFFERING: Adaptation of OLI (Open Learning Institute) educational materials to Telidon system
CONTACT:
Linda Love
Open Learning Institute
7671 Alder Bridge Way
Richmond, B.C.
V6X 1Z9
Tel. (604) 270-4132

INSTITUTIONAL TRIAL SITE: University of Victoria, Department of Creative Writing, Victoria
SPONSORING ORGANIZATION: Department of Communications
COMMUNICATION TECHNOLOGY: Videotex with microcomputer page creation
PROGRAM OFFERING: Electronic journalism and publishing
CONTACT:
David Godfrey
University of Victoria
Department of Creative Writing
Box 1700
Victoria, B.C.
V8W 2Y2
Tel. (604) 721-7306

ALBERTA

INSTITUTIONAL TRIAL SITE: Alberta Education Correspondence School, in co- operation with six school systems and six libraries, including: Calgary Public, Mount Royal Public, Southern Alberta Institute of Technology, and the University of Calgary

SPONSORING ORGANIZATION: Alberta Government Telephones
Alberta Educational Communications Authority (ACCESS)

COMMUNICATION TECHNOLOGY: Videotex

PROGRAM OFFERING: Correspondence Courses
Public, university and college library applications

CONTACT: Teresa Halcow
Correspondence Schools
100 Street
Edmonton, Alberta
Tel. (403) 425-2469

INSTITUTIONAL TRIAL SITE: Athabasca University

SPONSORING ORGANIZATION: Athabasca University

COMMUNICATION TECHNOLOGY: Videotex

PROGRAM OFFERING: Distance education

CONTACT: John Thompson
Athabasca University
Athabasca, Alberta
T0G 2R0
Tel. (403) 675-6111

INSTITUTIONAL TRIAL SITE: University of Calgary

SPONSORING ORGANIZATION: Department of Communications

COMMUNICATION TECHNOLOGY: Videotex with telephone teleconferencing system

PROGRAM OFFERING: Grammar within integrated language arts

CONTACT: University of Calgary
2500 University Drive N.W.
Calgary, Alberta
T2N 1N4
Tel. (403) 220-5110

MANITOBA

INSTITUTIONAL TRIAL SITE: Manitoba Educational Telidon Association
SPONSORING ORGANIZATION: Manitoba Department of Education
Infomart
COMMUNICATION TECHNOLOGY: Videotex
PROGRAM OFFERING: Elementary and secondary school applications
CONTACT:
John Tooth
Manitoba Department of Education
1181 Portage, Box 3
Winnipeg, Manitoba
R3J 0T3
Tel. (204) 945-7833

INSTITUTIONAL TRIAL SITE: Non-formal Home Learners in Manitoba
SPONSORING ORGANIZATION: Manitoba Telephone System
Infomart ("Grassroots")
Cybershare
COMMUNICATION TECHNOLOGY: Videotex, with coaxial cable
PROGRAM OFFERING: Computer-aided instruction - community college and secondary courses in:
. "BASIC" programming
. Electricity
. Mathematics of Finance
. Technology Mathematics
Business library - calculation and simulation programmes
Information library - nutrition, agriculture
CONTACT:
Arthur Balleger
Cybershare
550 Berrey
Winnipeg, Manitoba
R3H 0R9
Tel. (204) 775-0181

INSTITUTIONAL TRIAL SITE: Project Microcomm
SPONSORING ORGANIZATION: Manitoba Telephone System
Manitoba Department of Education
St. James - Assiniboia School Division
COMMUNICATION TECHNOLOGY: Videotex
PROGRAM OFFERING: "Grassroots" database
CONTACT:
Bruno Lets
Infomart
1661 Portage
Winnipeg, Manitoba
R3J 3T7
Tel. (204) 772-9453

ONTARIO

INSTITUTIONAL TRIAL SITE: University of Guelph
Department of Rural Extension
Office of Educational Practice

SPONSORING ORGANIZATION: Department of Communciations (capital)
University of Guelph (operating)

COMMUNICATION TECHNOLOGY: Videotex
On-campus - campus computer network
- microcomputers
- telephone
Off-campus - local and packet-switched telephone system

PROGRAM OFFERING: "Videotex Integrated Teaching and Learning" (VITAL), in the following areas:
- education, information to rural/remote audiences
- enhancing university's instructional function
- courses in biology, neural anatomy, zoology
- VET-TEL: database for veterinarian continuing education

CONTACT: Elizabeth Black
University of Guelph
Blackwood Hall
Guelph, Ontario
N1G 2W1
Tel. (519) 824-4140 ext. 2427
Kent Persival, NETWORK
University of Guelph
Institute of Computer Science
Guelph, Ontario
N1G 2W1
Tel. (519) 824-4140 ext. 6397
Bob McQueen, CoSy
University of Guelph
Institute of Computer Science
Guelph, Ontario
N1G 2W1
Tel. (519) 824-4140 ext. 6399

INSTITUTIONAL TRIAL SITE: Laurentian University, Sudbury

SPONSORING ORGANIZATION: InfoNorth Computing, Inc., Sudbury
Northern Cable Services
Advertising revenues and user fees

COMMUNICATION TECHNOLOGY: Telidon-based courseware distributed by Northern Cable Services as:
- videotex
- full-channel teletext
- open-channel cable

PROGRAM OFFERING: Extension of InfoNorth's educational service including computer literacy, physical education, health, local economy

CONTACT: Rick Danielson
Department of Physical Education
Laurential University
Sudbury, Ontario
P3E 2C6
Tel. (705) 675-1151 ext. 1003

INSTITUTIONAL TRIAL SITE: TVOntario, Toronto
SPONSORING ORGANIZATION: Deparment of Communications
Ontario Board of Industrial Leadership (BILD)
COMMUNICATION TECHNOLOGY: Videotex
Teletext
PROGRAM OFFERING: EDUTEX (Videotex): information on careers and training for youths and adults
EDUTEL (Teletext): education features, health education, news, weather, community information
Both services in English and French
CONTACT: Peter Roach
TVOntario Telematics
Box 200, Station Q
Toronto, Ontario
M4T 2T1
Tel. (416) 484-2600

INSTITUTIONAL TRIAL SITE: University of Waterloo, Waterloo
SPONSORING ORGANIZATION: University of Waterloo
COMMUNICATION TECHNOLOGY: Videotex
PROGRAM OFFERING: On-campus course and programme information; supplement to correspondence courses
CONTACT: Neil Paterson/Paul Beam
University of Waterloo
Waterloo, Ontario
N2L 3G1
Tel. (519) 885-1211

INSTITUTIONAL TRIAL SITE: University of Western Ontario, London
SPONSORING ORGANIZATION: University of Western Ontario, London
COMMUNICATION TECHNOLOGY: Videotex
PROGRAM OFFERING: Educational research service,
General information for university community
Extension of news service to "Grassroots" database
CONTACT: Henry Overbuin
Graduate School of Journalism
University of Western Ontario
London, Ontario
N6A 5B7
Tel. (519) 661-3383

QUEBEC

INSTITUTIONAL TRIAL SITE: Edimedia Limited, Mediatex, Montreal
SPONSORING ORGANIZATION: Department of Communications
Bell Canada
Infomart
PROGRAM OFFERING: University level: CAL biology programme and course information
CONTACT: Andrée Asselin
Edimedia Limited Mediatex
560, de la Couronne
Quebec, Quebec
G1K 6G6
Tel. (418) 647-3490

INSTITUTIONAL TRIAL SITE: Université du Québec à Montréal, Laboratoire de Télématique, Montréal
SPONSORING ORGANIZATION: Université du Québec à Montréal, Laboratoire de Télématique
COMMUNICATION TECHNOLOGY: Videotex
PROGRAM OFFERING: Image - 2 Informatique, Médiatique, Télématique
CONTACT: Michel Cartier, Télématique
Université du Québec à Montréal
Case Postal 8888, Succursale A
Montreal, Quebec
H3C 3P8
Tel. (514) 282-4531

INSTITUTIONAL TRIAL SITE: Télé-université, Université du Québec, Quebec
SPONSORING ORGANIZATION: Télé-université, Université du Québec, Quebec
COMMUNICATION TECHNOLOGY: Videotex, with Control Data Corporation "Plato" software
PROGRAM OFFERING: Course administration and management.
Electronic editing.
Adult education courseware: 20 courses
CONTACT: Pierre Patry
Télé-université, Université du Québec
4835 Christophe Colomb
Montreal, Quebec
H2J 3G8
Tel. (514) 522-3540

NEW BRUNSWICK

INSTITUTIONAL TRIAL SITE:	University of Moncton, Faculty of Arts
SPONSORING ORGANIZATION:	University of Moncton
COMMUNICATION TECHNOLOGY:	Videotex with microcomputers
PROGRAM OFFERING:	New Brunswick cultural history
CONTACT:	Georges François Faculty of Arts, University of Moncton Moncton, New Brunswick E1A 3E9 Tel. (506) 858-4016/858-4033

PRINCE EDWARD ISLAND

INSTITUTIONAL TRIAL SITE: University of Prince Edward Island, Charlottetown

SPONSORING ORGANIZATION: Red Cross
IEA Consulting

COMMUNICATION TECHNOLOGY: Videotex on adapted microcomputers

PROGRAM OFFERING: Educational material

CONTACT:
Glenda MacDonald
Tele-Graphics Inc.
North Wiltshire, P.E.I.
COA 1YO
Tel. (902) 566-0464

Section C: Other Projects, Sources and Contacts

This section summarizes additional projects or activities that use communication technologies in the field of instruction, as well as in the areas of research and exchanges. For various reasons, the activities could not be included in the earlier sections.

This section also lists a limited number of publications and organizations or contacts relevant to communication and distance learning.

1) Additional Instructional Activities

a) INSTITUTION: Emily Carr College of Art and Design - Outreach, Vancouver, British Columbia; contact: Nini Baird;
TECHNOLOGY: KNOW network distribution, videotapes and telephone tutoring;
PROGRAMME AREAS: Two 13-week courses on contemporary art in Canada. One course is offered through the Open Learning Institute and one is a college credit course.

b) INSTITUTION: Okanagan College, Distance Education, British Columbia; contact: Valerie Higson;
TECHNOLOGY: Use of KNOW network, telephone tutorials and cassettes;
PROGRAMME AREAS: Credit courses in anthropology, business, social work and German; upgrading programmes in algebra and professional development activities.

c) INSTITUTION: Assiniboine Community College, Brandon, Manitoba; contact: Julian Gorchynski;
TECHNOLOGY: Videotapes for home use and for local broadcasting on up to 20 TV stations, both supported by access to an instructor through toll-free telephone lines. Audioconferencing between instructors and community groups;
PROGRAMME AREAS: Complete first-year business administration curriculum (credit), short informational sessions of particular interest to rural and farming communities.

d) INSTITUTION: Brandon Mental Health Centre, Manitoba; contact: R. Richest;
TECHNOLOGY: Videoconferencing link between the University of Manitoba and the Centre, leased from the phone company;
PROGRAMME AREAS: Psychiatric grand round presentations transmitted from the University of Manitoba.

e) INSTITUTION: Saskatchewan Education, Superintendent, Saskatchewan; contact: Leigh Calnek;
TECHNOLOGY: Computer network;
PROGRAMME AREAS: Career counselling.

f) INSTITUTION: Health Sciences Centre, University of Manitoba, Winnipeg; contact: E. Lyons;
TECHNOLOGY: Video and telephone transmission;
PROGRAMME AREAS: Diagnostic ultrasound support services for physicians and technologists.

g) INSTITUTION: University of Waterloo, Teaching Resources and Continuing Education, Waterloo, Ontario; contact: Christopher Knapper;
TECHNOLOGY: Experimentation with audioconferencing as well as with lap portable computers;
PROGRAMME AREAS: Exploratory support and assessment for general learning activities for students in Arts and Social Sciences as well as in Recreation and Leisure Studies, and Biology.

h) INSTITUTION: Ontario Museums Association, Ontario; contact: Carol Beatty;
TECHNOLOGY: Occasional audioconferencing support for a multi-media learning package. Jointly with the University of Waterloo - networking of microcomputers to the University mainframe computer;
PROGRAMME AREAS: Museum management for museum personnel.

i) INSTITUTION: Nova Scotia College of Art and Design; contact: Mary Herbert;
TECHNOLOGY: DUET studios and access service to the Atlantic Satellite Network;
PROGRAMME AREAS: Museum studies.

j) INSTITUTION: University College of Cape Breton; contact: Donald Fewer;
TECHNOLOGY: Television;
PROGRAMME AREAS: Business Courses.

k) INSTITUTION: Acadia University; contact: Leo Deveau;
TECHNOLOGY: Dedicated audioconferencing network, linking from 12 to 15 communities; also, videotape supplements to courses taught on the audioconferencing network;
PROGRAMME AREAS: Undergraduate credit courses on a wide range of subjects.

2) Research Networks and Activities

This section highlights three of the available computer services that are heavily used in the education sector.

NAME: Canadian Higher Education Research Network (CHERN)

CHERN is in the process of implementing telematic services under a grant from the federal government. Two initial services are electronic mail and computer conferencing. Information on these CHERN-supported services is available to the users by phone, electronically through the network and on hard copy. A telephone answering service supplies consulting on CHERN-supported technologies and services. This consulting on the use of selected conferencing and electronic mail services supplements the material provided by manuals prepared and maintained by the university using those systems. The CHERN hotline will provide help on how to access the CHERN services in the network, answer questions on the particular conferencing and electronic mail operations and help users interface their micros with a network service including questions about word processing capability and file transfers.

CHERN's priority for information and support will be for projects in research on Canadian higher education.

NAME: NETNORTH

NETNORTH is a Canada-wide computer communications network for participating universities and colleges. The Universities of Alberta, Guelph and New Brunswick are the regional co-ordinating bodies. The University of Guelph also acts as the central co-ordinator and links NETNORTH to educational institutions throughout the world.

NETNORTH offers electronic messaging services and is used for interlibrary loans.

NAME: CoSy

CoSy was developed by the University of Guelph and provides electronic messaging and computer conferencing services for its subscribers. It has a large number of subscribers from the educational community and is used for joint authoring of papers and enhancing research discussions. It is also used as a project management tool by the University for its international activities.

3) Publications, Organizations and Contacts

The Council of Ontario Universities has compiled a Calendar of Distance Education Courses (1985/86); University Education at Distance, Opportunities in Ontario.

The Open University Consortium of British Columbia (made up of the Open Learning Institute, Simon Fraser University, the University of British Columbia, University of Victoria and the Knowledge Network) produces an annual calendar of courses.

The Association of Atlantic Universities, with support from the Maritimes Higher Education Commission, has established an Office of Educational Communications to assist the member institutions in monitoring, assessing and introducing communications technologies.

The Canadian Association for Distance Education offers occasional seminars, publishes a bi-annual journal and a bi-monthly newsletter, and holds an annual conference.

The Canadian Association for University Continuing Education annually publishes the Canadian University Distance Education Directory.

The Groupe Québécois-Télématique et Éducation, Inc. published an inventory of provincial activities in 1984.

The Ontario Transport Energy Management Program through its Teleconferencing Task Force prepared in 1983 a Teleconferencing Systems Guide that includes a discussion of system components and suppliers.

Telecom Canada has issued a number of publications on telecommunications and higher education.

TVOntario, as part of an international studies programme sponsored by UNESCO, published 17 papers on New Technologies in Canadian Education in 1984.

GLOSSARY OF TERMS*

* Credit for many of the definitions in this Glossary should be given to: Teleconferencing System Guide of the Ontario Transportation Energy Management Program; and to Ray Lewis's book, Meeting Learner Needs Through Telecommunications: A Directory and Guide to Programs.

ACCESS:

the name of the Alberta Educational Communications Corporation.

ADDRESSABLE SYSTEM:

the computer-controlled capacity of a service to send information to selected sub-sets of a total network, e.g., exclusively to physicians, engineers or other defined groups.

ANIK-C:

a Canadian satellite which operates in the 14/12 GHZ frequency band and mostly carries the provincial educational satellite services. Entertainment broadcasting is in the 6/4 GHZ frequency band. The two frequencies cannot be received by the same television receiver earth stations.

AUDIOCONFERENCE or TELECONFERENCE BRIDGE:

a system required to connect three or more locations simultaneously for multi-point discussion. Some bridges permit three calls only (minibridges); others allow for the simultaneous connection of up to 50 sites.

AUDIOCONFERENCE CONVENOR:

a type of audio terminals that amplifies and balances voices and facilitates speaking and listening during a teleconference.

AUDIOCONFERENCING (AUDIOTELECONFERENCING):

a meeting between two or more locations where electronic voice transmission is the means of communication.

AUDIOCONFERENCING NETWORK:

regularly dialed telephone network linking audioconferencing locations or private networks dedicated to teleconferencing.

AUDIO TERMINAL:

equipment used to talk and listen in an audioconference; ranges from telephone handset to speaker-microphone units which accomodate groups at any location.

CABLE TELEVISION:

a broadband transmission system which has the capacity to deliver multiple channels of programming to residential and institutional subscribers over a coaxial cable. Technologies such as satellite, microwaves and fiber optics can also be used as parts of a cable television system.

CABLE HEADEND:

the component of a cable TV system through which programming and information enters the cable network.

COMPUTER ASSISTED INSTRUCTION (CAI):

a system by which the student receives individualized instruction by interacting with a computer terminal. The computer is programmed to guide the student through a series of instructional material. The computer can be used to supplement traditional classroom instruction or as an alternative to the classroom. In either case, it not only allows students to proceed at their own pace, but also enables faculty to deal with students on a one-to-one basis both on and off the computer.

COMPUTER MANAGED INSTRUCTION (CMI):

a system of managing instruction in which the computer is used for tasks such as student record keeping, selection of instructional material, scoring of tests, interpretation of results and monitoring of student activities. Students learn away from the computer and receive feedback in a written form.

CARRIER:

a telephone company.

DEDICATED SYSTEM:

a communication channel which is reserved for the purpose of providing a single service. The telephone lines for audioteleconferencing systems and those for educational access to cable television channels are both examples of dedicated systems.

DIAL-UP SERVICE:

(see audioconferencing network).

EARTH STATION:

the antenna and electronics used to receive signals from a satellite or to transmit signals to a satellite.

ELECTRONIC BLACKBOARD:

a telephone-based technology which is capable of transmitting hand-drawn graphics between different locations. When the instructor writes on an electronically sensitive blackboard the writing appears in the distant location on a television monitor. If the students at the remote location also have an electronic blackboard, the result is an interactive exchange of graphic and audio information. Voice communication between locations is made possible by an additional telephone line.

INVIGILATION:

supervision of student examinations through an appointed representative of the course intructor.

ITFS or INSTRUCTIONAL TELEVISION FIXED SERVICE:

television channels that have been set aside for non-profit educational uses. In order to receive this broadcast television programming, a receiving site must be equipped with a special antenna.

IN-WATTS (and WATTS) SERVICE:

(wide area telephone service) specialized tariff arrangement between a phone company and a customer; primarily used by customers with large telephone traffic in a defined geographic area.

KNOW or KNOWLEDGE NETWORK OF THE WEST:

the Educational Communication Authority for British Columbia.

PORT:

the component of the audioconferencing network which connects telephone lines with the bridge.

PLATO:

stands for Programmed Logic for Automated Teaching Operations. An interactive computer-based learning system.

SLOW-SCAN TELEVISION (SSTV):

a television system that takes video pictures at regular intervals and transmits them via telephone lines, or similar networks, to monitors. An SSTV system usually includes a carrier, a transmitter, a receiver and a monitor.

TELETEXT:

a one-way broadcast video technology that reaches a television set in the same manner as a standard television broadcast signal. Teletext delivers computer-generated data in text and graphic form into the home using the television set as the display screen. Some teletext systems, which offer viewers services such as news bulletins and closed captioning for the hearing impaired, are non-interactive. Others, which offer a wider range of information, allow the viewer to use a hand-held keypad to select specific pages of text and/or graphic information. Such systems are sometimes referred to as "interactive" but, in fact, the viewer cannot interact with the computer generating the data at the point of origination. See videotex.

TVRO:

antennas or earth stations which receive TV programming from a satellite.

UPLINK:

a satellite earth station with the capacity to send TV or audio signals to a satellite.

VIDEO/TELECONFERENCING:

interactive communication among individuals or groups at three or more locations. At the very least, it includes audio in both directions and video in one direction. Two-way video, in addition to two-way audio, is most often referred to as video teleconferencing even though one-way video is more common. A variety of technologies can be used alone or in combination to achieve video teleconferencing. The video can be full-motion, or slow-scan.

VIDEOTEX (OR VIDEOTEXT):

both spellings of this term are used to refer to the process of delivering computer-generated data in text or graphic form into homes, using the television set as the display screen. Unlike teletext technology, which does not permit the viewer to interact with the computer, videotex is interactive. By using a keyboard the viewer is able to send word as well as numeric messages to the computer, thereby opening up a wide range of options. In addition to gaining access to various prepared lists of general-interest information, the viewer might retrieve information from data banks or even engage in computer-assisted instruction. Linkages between videotex and personal computers are also possible. See teletext.

VISTA:

the name for field trials of the Telidon Videotex service operated initially by Bell Canada in Ontario and Quebec. Later on, it was taken over by INFOMART, Inc. of Toronto.

APPENDIX A

SURVEY METHODOLOGY

1) Scope and Selection Criteria

This Sourcebook includes those projects, programmes and activities which meet the following criteria in technological and pedagogical applications.

Technological applications:

This study includes those projects which use or will soon use some electronic transmission as part of their delivery method, including satellite, cable systems, off-air broadcasting or microwave links, fibre optics and telephone. The projects could use TV or radio signals or offer voice or data transmission capabilities. Although activities which use these technologies for on-campus support or instruction have implications for distance learning, their inclusion would make the Sourcebook too voluminous.

Pedagogical applications:

The Sourcebook focuses is on projects which provide the learner access to an educational message as well as to supplementary learner support through study groups, print material, telephone tutorials and so forth. Therefore, we excluded general educational TV or radio broadcasts with no discernable interactive learning support infrastructure.

In addition, a few projects were included which use telecommunications primarily for student administration, not for instruction itself. They were included because they are important for future developments in learning infrastructures.

2) Sequence of Research Activities

1) Search literature and documentation, such as the UNESCO papers prepared by TVO, for relevant project descriptions, contact names and activities. Membership lists of associations, conference attendance records, newsletters, government press releases were reviewed in the general areas of continuing university education, distance education and professional training as well as in the areas of technology, and communication services.

2) Compile a mailing list including universities, colleges, provincial Departments of Education, telecommunications industry and organizations, professional associations and private corporations across the country.

3) Enlist a number of knowledgeable individuals in distance learning across the country as advisors to provide comments and input as much as their time allows.

4) Elaborate the project description criteria with the Advisory Group and with the DOC.

5) Attend a conference on distance education at the University of Guelph and visit British Columbia and Quebec to gather further information.

6) Send letters of inquiry and a questionnaire to over 400 contacts, at times several in the same institution, asking people to provide their own project descriptions following the criteria developed or to send articles, course brochures and related material to be reviewed and integrated by the author.

7) Follow up the letters with phone calls and discussion.

8) Prepare and review sample descriptions with DOC and the Advisory Group.

9) Reformat the descriptions in concise point form, plus change some of the original headings and categories to reflect the material received.

10) Drop the original intention of providing systems diagrams because they were largely unavailable in most cases.

11) Integrate some of the descriptions where several submissions were received from the same institution.

12) Return the draft description to each institution for comment and, occasionally, for further required details which might not have been provided earlier.

13) Continue telephone contacts for clarifications and make judgment calls on those descriptions for which no feedback was received on the second round of letters.

14) Develop analytic matrices to summarize, for quick reference, the key features of active projects.

APPENDIX B

Survey Questionnaire

GUIDELINES FOR PROJECT DESCRIPTION

The Sourcebook will consist of short descriptions of individual projects and programs. The descriptions will be consistent across projects using the same parameters for description so that users can easily make searches and assessments. When providing information for the Sourcebook, please keep the following in mind:

- Input will be edited, complemented or discussed with you by phone, etc. Therfore, feel free to provide rough copy, or attach papers, press clippings and other material for some sections. Provide us with as much information as possible.

- The accompanying excerpts of a similar U.S. publication by Ray Lewis gives you the flavour of the type of product we are aiming for.

The project descriptions will be organized into 15 topic areas. Please describe your project/program using these topic areas, or send background material which we can use to undertake the descriptions (we will, of course, have the final descriptions reviewed by you or a designate before publication). Use as many backup pages as necessary.

1. Sponsoring organization and responsible division.

2. Educational mission of project originator(s). Rationale for telecommunications-based project.

3. Telecommunication technologies, mixes, usage and instructional function of different technologies.

4. Telecommunication system design and architecture - Provide system diagrams or "electronic classroom descriptions," if applicable; interaction with carriers; system maintenance procedures.

5. Course offerings, levels, duration, dates available.

6. Educational delivery system, including learning arrangements, support services, counselling, registration and examination.

7. Enrolment, number of learners enrolled and participating, their characteristics, performance and program completion rate.

8. Administrative factors - staffing, operational responsibilities and place within organization.

9. Software or courseware development process - role of different entities and individuals, review process and production responsibilities.

10. Training process - for presenters, faculty, local resource people and learners.

11. Global financial and budgetary expenditures for capital and ongoing costs - for personnel, software, hardware and telecommunications.

12. Future plans - in regard to telecommunication services and facilities as well as in regard to educational goals.

13. Services available - consulting, training, courseware, site visits.

14. Contact person.

15. Please feel free to make additional comments on other aspects of your program which are particularly noteworthy, or could prove to be critical to other undertakings; for example, needs analyses or course evaluations.

Thank you for your co-operation. Please provide information for the Sourcebook by November 20, 1985 to Anna Stahmer, Ryerson International Development Centre, 350 Victoria Street, Toronto, Ontario, M5B 2K3.

APPENDIX C

Reader Feedback Form

Dear Reader:

We would appreciate your comments on "Communications Technology and Distance Learning in Canada."

		Yes	No
A.	Do the categories used for the project descriptions reflect your information needs? If not, what categories would you add or delete?	☐	☐
B.	For what purposes are you using the sourcebook?		
	- general interest	☐	☐
	- establish contact with colleges about:		
	* the technical system	☐	☐
	* course development	☐	☐
	* joint program development	☐	☐
	* inquire about their services	☐	☐
	* other, specify	☐	☐
C.	Should the survey be updated occasionally?	☐	☐

If you have indicated yes, please comment on points you would like to see covered in a later version.

_____

_____

_____

_____

_____

D. Please identify your:

institutional affiliation		personal responsibility	
☐	elementary/secondary school system	☐	teaching
☐	university	☐	training
☐	college	☐	administration
☐	government	☐	consulting
☐	private sector	☐	policy development
☐	telecommunications carrier	☐	strategic planning
☐	specialized service that provides equipment	☐	evaluation
☐	professional association	☐	other
☐	cable company		

E. Please list projects or activities, including contact names, phone numbers and addresses which should be included if an update of the Sourcebook were to be produced.

_____

_____

_____

_____

Thank you for taking the time to answer these questions.

Please return this questionnaire to:

Barbara Helm
Senior Policy Analyst
Department of Communications
Room 1914
300 Slater Street
Ottawa, Ontario
K1A 0C8

Fold here

To: Barbara Helm
Senior Policy Analyst
Department of Communications
Room 1914
300 Slater Street
Ottawa, Ontario
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